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METHOD OF COLLECTION AND VALUE OF MORBIDITY STATISTICS.

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Morbidity statistics are the statistics of disease. They are classified facts regarding the incidence and relative prevalence of disease and sickness as shown by the occurrence of cases. Without morbidity statistics in some form, we cannot know of the occurrence of disease or its relative prevalence, present or past, knowledge upon which the control of disease must in large measure be based.

There is confusion in the minds of many as to the relationship of morbidity and mortality statistics. Their relationship will be readily understood when it is considered that morbidity statistics are classified facts regarding the occurrence of diseases and include all cases, while mortality statistics are classified facts regarding the occurrence of those cases only which end in death. In the absence of morbidity statistics, mortality statistics have been used by public health workers as a gauge by which the relative prevalence of disease might be estimated, for it is in the prevalence of disease that the sanitarian is fundamentally interested, rather than in the number of deaths. While mortality statistics have been exceedingly useful for this purpose and have supplied a working basis which would otherwise have been lacking, used in this way they are at best a substitute to be employed only in the absence of something better. The use of mortality records as an index of the prevalence of a disease is based on the assumption of a fixed fatality rate for the disease under consideration. But in comparatively few diseases are the fatality rates fixed. It is especially true

in the infectious diseases that the fatality rates may vary greatly in different outbreaks and under varying circumstances. Also a high sickness rate is occasionally found associated with a moderate mortality rate. Then, too, there are diseases of which a knowledge is required in public health administration which do not perceptibly affect the mortality rate and seldom appear in mortality records.

In comparing thus the relative uses of mortality and morbidity records in showing the prevalence of disease, it must not be construed that there is any intention to minimize the importance of, or necessity for, complete and accurate mortality records. Mortality records serve many other purposes, and are a fundamental necessity to every community.

In the development and social evolution of a community or nation, the various needs for the accurate recording of deaths have usually been felt first. Then with the inception of public health work has come increased attention to the causes of deaths and the conditions under which they occur. An appreciation of the necessity for morbidity records is a later development, and comes to a community or nation only with the beginning of earnest and well considered sanitary administration. Morbidity records are necessary when a knowledge of the prevalence of disease and the conditions of its occurrence are desired.

Morbidity statistics, the compiled and classified facts regarding the occurrence of sickness, show the varying prevalence of disease during previous months or years and are, therefore, of value in studying the conditions and causes that have contributed in producing disease. While their value for this purpose is great and will be underestimated by few, one of the main functions of morbidity statistics is the current information given during the collection of the data of which they are composed. The control of a disease must in most instances be intimately associated with a knowledge of the occurrence of cases, and this knowledge is obtained in the primary collection of the data from which morbidity statistics are derived, that is, the notification of cases. The health officer, who knows only of the fatal cases of a preventable disease, is to a certain degree merely a recorder of past events. If it were possible for him to know of every case, preventive measures could be inaugurated at a comparatively early stage, the source of incipient outbreaks could be found, and the occurrence of additional cases prevented.

Reports of cases of disease serve primarily four purposes which may be stated as follows:

First, to show the occurrence of cases of communicable diseases which constitute foci from which the infection may spread to others—as in scarlet fever, typhoid fever, tuberculosis and smallpox.

Second, to show the occurrence, distribution and varying prevalence of certain maladies of which the cause or means of spread is unknown, in

which they furnish information of possible value in ascertaining the cause or means of spread—as in pellagra.

Third, to make proper treatment possible, as in ophthalmia neonatorum, diphtheria and tuberculosis.

Fourth, to show the existence and location of conditions that are capable of causing illness or injury as in the industrial diseases and intoxications.

Fifth, to show the need of certain sanitary measures or works and to control and check the efficiency of such measures or works when put into operation. In pulmonary tuberculosis such reports show the number of consumptives in the community and the need for sanatoria. In malaria they show the prevalence of disease, the need for drainage and other anti-mosquito works, the efficiency of such works when in operation, and when a change in the prophylactic measures or additional ones are necessary. In typhoid fever they show faults in the water supply or in the control of the production and distribution of milk or in the disposal of excreta in special localities.

Sixth, morbidity reports when recorded over a period of time and properly compiled become a record of the past occurrence of disease. They show the relative prevalence of disease from year to year and under varying conditions. They show the effect of the introduction of public-health measures and of sanitary works. They give a history of disease not obtainable in their absence.

In the United States, most sanitary matters are controlled by the several states, and the power to legislate regarding them resides in the respective state authorities. In certain of the states the requirements regarding morbidity reports have been enacted into law, in others, authority has been given to the state boards of health to cover the subject by regulation. In some states, the control of morbidity reports as well as certain other sanitary matters has been delegated in whole or in part to certain of the local authorities. In most instances, local authorities have the right to supplement the state requirements by such additional ones as may be indicated. In a number of states, certain cities, usually the larger ones, are exempted in whole or in part from the requirements regarding the reporting of the occurrence of disease which apply to other parts of the state. This exemption of cities is patently illogical and is based on a misconception of the reciprocal responsibilities of state and local sanitary authorities.

Under existing conditions, the laws and regulations of the several states, in regard to morbidity reports, differ widely as do also the attempts being made to enforce these requirements. As disease is no respecter of political divisions or state boundaries, and as the welfare of every state is intimately related to the morbidity conditions in other states, there is a need for the enactment and enforcement of uniform minimum requirements for the reporting of the occurrence of preventable diseases.

In the collection of morbidity reports, the most common plan in operation in this country is to require physicians to report to the local health department the occurrence of cases of certain diseases seen by them, these reports to be made usually immediately or within a definite time after the diagnosis has been made. The local health officers in some states forward at once these reports, or merely statements of the number of cases notified, to the state department of health. In some states, the local officers report to the state authorities weekly, in others monthly. In one state, the reports are made twice a month, and, in a few states, at intervals of more than a month. In those states where the local authorities report the notified cases to the state department immediately or daily, the state health department is in a position to keep currently informed regarding the prevalence of the notifiable diseases throughout the state. This is in less measure true in those states in which the reports are forwarded weekly by the local authorities. Where the reports are made at longer intervals, they cease to be strictly of current value to the state health department. They have lost their public health value for current use, and remain useful only for purposes of morbidity statistics.

It is difficult to conceive of an efficient or seriously administered state department of health which does not know and makes little, if any, attempt to learn of the current incidence and relative prevalence of preventable diseases throughout its jurisdiction.

In this connection, a matter worthy of consideration is the relative importance of the enactment of laws and their enforcement. Laws do not enforce themselves, and it is a debatable question as to whether an unenforced law is not worse in its ultimate effect than the absence of law. The statutes of many states are filled with public health laws, and chief among them perhaps are the requirements in regard to the notification of disease, which are not enforced and for which in some cases there is little provision for enforcement.

Another factor which enters into the securing of morbidity reports by state health departments is in many instances the absence of control by the state health department over local health officers. For a state to have an efficient system of morbidity reports, the state health department needs to have some means of insuring that local authorities will forward regularly the notifications of disease made to them. Without such authority morbidity reports for a state as a whole must necessarily be impossible unless the state authorities supplant the local health officers in the collection of morbidity reports in local jurisdictions. Where local authorities have control of sanitary administration within their respective jurisdictions and are responsible only to their respective communities, the state health department is practically without jurisdiction, and its usefulness is unduly limited. This control of local health officers by the state board or depart-

ment of health has been found essential, especially in the securing of morbidity reports for a state, and in a considerable number of states control in one manner or other over the local authorities has been given to the state department of health. In some, this control is secured by the state board of health appointing all or a majority of the members of local boards of health, in others, by giving to the state board authority to remove from office local health officers.

There are forty-eight different diseases which have been designated by law or regulation as notifiable in one or more states. These do not include the occupational diseases, for the notification of which there have been a number of laws recently enacted, or mental deficiency, which is notifiable in one state. The diseases which have been most commonly made notifiable are cerebro spinal meningitis, diphtheria, leprosy, measles, plague, poliomyelitis, scarlet fever, cholera, smallpox, tuberculosis, typhoid fever, typhus fever, whooping-cough, and yellow fever. These are each notifiable in twenty or more states. Smallpox is designated as notifiable in forty-four states, diphtheria in forty states, and scarlet fever in thirty-nine. Cancer is notifiable in New York State, and chagres fever in Alabama. Venereal diseases are notifiable in California, Utah, and Vermont. The manner of notification, however, differs from that for other diseases, in that in the reporting of venereal diseases the name of the patient is not given. Cases of mental deficiency, including epilepsy, are notifiable in New Jersey. Amebic dysentery and paratyphoid fever are notifiable in the state of Washington and the territory of Hawaii; barber's itch in Oregon; favus, echinococcus disease and paragonimiasis (lung fluke disease) are notifiable in the state of Washington, and follicular conjunctivitis in Hawaii. Fifteen states have enacted laws requiring the notification by physicians of certain occupational diseases. The diseases commonly included in these laws are compressed air illness and poisoning by lead, phosphorus, arsenic or mercury, or any of their compounds. Anthrax is also included in a number of the laws and wood alcohol and brass poisoning in others.

In the notification of diseases, it has usually been customary to require the physician, in making his report, to include all the data regarding the case desired by the health department. In the majority of instances, no further data regarding these cases are secured by the health officials. While it may be impracticable in most instances to change this practice at the present time, it must be recognized that a local health department should prefer to collect the data regarding each case itself, and should not be willing to depend upon the physician's report for its epidemiologic information. Logically, the only information which the physician should be depended upon to give in his report is the occurrence of a case, or a suspected case, of a given disease in such and such a person at such and such an address.

He might properly be required to add to this such data as are a matter of record, or easily verified, such as the age, color, and sex of the patient, and similar information. The local health department, however, should be reluctant to depend upon the diagnosis of the practising physician, unless such diagnosis has been verified by a trained diagnostician in the service of the department itself. Verification of the diagnosis by the health department has been the practice during recent outbreaks of such diseases as yellow fever and plague. It is also the practice in certain other instances. It must necessarily become the practice whenever a determined effort is to be made in the control of any preventable disease.

Since each state has exclusive authority within its jurisdiction over the requirements for morbidity reports, any comprehensive plan that may be developed for morbidity reports and morbidity statistics must be the result of combined effort and coöperation, and the enactment by the several states of similar requirements. It implies also an adequate enforcement of these requirements. The question of state morbidity reports is one of the most difficult problems to be solved by the state authorities. A number of states have been endeavoring earnestly to solve the problem within their respective jurisdictions. Considerable progress has been made in several instances. The question is one which is bound to be an important one, and to receive much consideration during the next decade. The state health authorities in conference with the Public Health Service have had the matter under consideration in connection with their annual conference, and have approved a model state law for morbidity reports.

In a previous conference, the state health authorities had taken action whereby regular reports of the prevalence of disease in their respective jurisdictions were to be forwarded to the surgeon-general of the Public Health Service, these reports to be made at intervals by mail, and, in the case of certain diseases or outbreaks, also by telegraph. These reports are published by the surgeon-general in the *Public Health Reports* which are issued weekly in editions of between eight and nine thousand copies, and are sent to state and local health officers and to those engaged in sanitary work. At the present time, however, the health authorities in many of the states are unable to forward these reports as the data are not available in their respective offices. With time and increased appropriations the states that are not now in a position to report will become able to do so, and the states that are now reporting will be able to improve their reports and make them more complete.

NEWER ASPECTS OF PUBLIC HEALTH EDUCATION.

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Milwaukee, Wis.

Read before the Sociological Section, American Public Health Association, Colorado Springs, September, 1913.

The establishment of a bureau of health instruction in the Extension Division of the University of Wisconsin is based upon the faith, which no longer needs exposition nor defense, that ignorance and apathy are the basic and underlying factors in the spread of preventable disease. To us in Wisconsin, who know and understand the State University and the spirit which animates it and gives it character and personality, the establishment of such a bureau does not seem nearly so strange as that so logical and entirely practicable a department of instruction should not have been instituted before.

You must know that the distinguishing characteristic of our State University is "service"—service no less to the citizenry which generously taxes itself for its support than to the relatively small group of youthful citizens (about 5,000) whom favorable circumstances permit resident instruction. This service is not offered nor given ostentatiously as is imagined by some after reading criticisms directed against the administration and, even more, after reading the fulsome praise and extravagant statements of an occasional special feature writer in a popular magazine.

This explanation seems necessary in order that I shall not extend the fallacious notion, which exists occasionally outside of Wisconsin, and here and there even in our own state, that the University is on the one hand merely a popular, more or less socialistic information dispensary or on the other hand an autocratic, meddlesome "Brain Trust." Permit me the statement that exact knowledge is nowhere held in greater veneration, nor more devotedly sought, than in the academic circles of the University of Wisconsin. But the conception of a great educational institution, owned and controlled by the people, does not permit of any notion that the University shall be merely a museum for the safe storage of valuable knowledge. Knowledge loses none of its dignity and no veneration in Wisconsin when it is put at serviceable work, however humble that service may be.

It is this conception which led, six years ago, to the establishment of the Extension Division as it is now organized and conducted. Previous to that time, there had been the same sort of University Extension Lectures which are still to be found amongst the enterprises of other universities, a sort of fungus growth which added little of value to the parent stem which

gave it seat, or to the wealth in genuine knowledge and culture of the public which supported and patronized it.

With the ideal of taking the advantages and opportunities of the University to the people who could not come to *it*, the fact was appreciated that a new system of instruction must be evolved: a system, which, while having its foundation in the university structure, should still be fashioned to meet the needs of the student, who, while possibly deficient in preliminary education, nevertheless has sufficient mental capacity to grasp basic truths when presented in a form adapted to his educational limitations. In other words, it was found to be practical to adapt the system of instruction to the pupil rather than to attempt the frequently impossible, or at least impracticable object, of adapting the student to the system of instruction. Under this conception, an organization was effected which embraces four main departments:

Correspondence Study.
Instruction by Lectures.
Debating and Public Discussion.
General Information and Welfare.

Correspondence Study.

It has been found that where knowledge and not credit is the object of the student, correspondence study in many instances offers opportunities to the mature, ambitious student, which are more eagerly sought and finally more exhaustively utilized than are the previously more venerated lectures, demonstrations and quizzes of the resident student who frequently arrives at the University little more than an overgrown boy.

Teachers, who before engaging in correspondence instruction were exceedingly skeptical concerning it, have, with actual experience in the work, grown so enthusiastic over the results, that they have chosen to devote their energies exclusively to correspondence rather than to resident instruction.

As indicating the diversity of the instruction that is successfully carried on by this means, the following list of subjects is most interesting and suggestive:

Geology and Mineralogy,	Astronomy,	German,
Hebrew,	Bacteriology and Hygiene,	Greek,
History,	Botany,	Home Economics,
Latin,	Business,	Italian,
Mathematics,	Chemistry,	Mechanical Draw.,
Music,	Education,	Pharmacy,
Philosophy,	Electrical Engineering,	Physics,
Political Economy,	English,	Spanish,
Political Science,	French,	Surveying.
Structural Engineering,	Gardening,	

Instruction by Lectures.

An attempt is being made in this department to furnish popular lecture courses and entertainments which, in attractiveness, business-like booking, routing, press agenting, advertising, etc., will vie with the best of the commercial lyceum and lecture bureau services. In addition to this, it is the aim, of course, as a university enterprise, to patronize and offer only those feature attractions which are above reproach. In short, a demonstration is being given that learning and culture are not always dull and uninteresting, nor necessarily a form of self-immolation.

In a given community, the public is given what it believes it desires, even though this fall below the standard the department holds. Experience has bred the assurance that the demand will be for progressively higher class lectures and entertainment features each succeeding year.

Debating and Public Discussion.

Through this department, package libraries of collected reports, articles clipped from magazines, newspapers, etc., are, upon request, shipped by mail or express to any section of the state. The packet library contains articles selected from the best periodical literature of the day. The selection, cataloging and packeting are the work of a staff of trained librarians who thus afford a service to the patrons of this department which would otherwise be almost beyond the means of even the best endowed student.

Debating societies are encouraged and assisted in program making, and in good presentation of discussions by library packets divided into affirmative and negative phases. Articles, data and references upon questions of moment are divided impartially, so that an individual or a community may form an intelligent opinion upon new questions of vital concern, or, more properly, upon the newer phases of old questions.

General Information and Welfare.

This is essentially a department of applied sociology, through which the service ideal, which has been mentioned above as animating the University, is offered to social groups, varying in importance from the neighborhood literary society to the important civic club, from the village and town selectmen to the administrative officers of the larger cities. It is the aim and object of this department, upon request, to supply, as well as may be, the demand for information, working programs and personal counsel upon problems which confront people living under the complex conditions of community life. At present the department is divided into three bureaus:

Municipal Reference.

Civic and Social Centers.

Public Health Instruction.

Bureau Municipal Reference.—To quote the director, Mr. Ford H.

McGregor: "The general purpose of this bureau is to collect data and information on subjects of municipal government and place it at the disposal of the citizens of the state who can benefit by it." Data are collected from cities throughout the country. The bureau is freely consulted by public officials and other citizens interested in municipal government. It is interesting, in this connection, to note that nearly 40 per cent. of the requests for information have come from outside Wisconsin—from officials and citizens whose acquaintance has been made only through the quest of the bureau for data upon their local ordinances and administration.

Civic and Social Center Bureau.—The purpose of this bureau is to stimulate organization of the people for the purpose of deliberating upon and discussing matters of policy in "the common business of citizenship."* The use of the public schoolhouse for meetings, lectures, exhibits and recreation is advocated and encouraged. In order that the organizations effected may be conducted in a systematic, orderly and purposeful manner, the employment of the school principal or some other public officer as secretary is urged. Under the conception upon which this bureau is operated, the use of the facilities which the public school building provides for the instruction of the young is urged for further educational opportunities to adults.

Before proceeding to a detailed description of the Health Instruction Bureau, a few words will be devoted to the

DISTRICT ORGANIZATION.

To facilitate distribution, and to secure the desirable contact of instructor with pupil (for the sake of the instructor quite as much as that of the student), the state is divided into districts. The accompanying map indicates the district organization. At present but five districts have been opened. Three will be opened in the next two years, and the balance as rapidly as the means at hand will permit.

The individual district employs a district representative, organizers and such instructors as demand for class instruction warrants. There should be no misconception that the district organization is merely a branch school. Its important function is to serve as the connection through which any of the service facilities of the Extension Division can be diffused, and through which the local needs and demands of the district can be concentrated and transmitted to headquarters.

Health Instruction Bureau.

The accompanying diagram indicates the organization, scope and design of present and proposed enterprises. The top line indicates the various

*Edward J. Ward, adviser.

departments and colleges of the university proper, upon which drafts will be made for the scientific knowledge and information. This will be focused through the Extension Division, where it will be recast into popular form and disseminated through the regular existing departments and agencies of the Extension Division described above.

The form in which the instruction is being and will be dispensed is shown in the long line, and the objective below.

Lectures.—It is the purpose to provide popular lectures upon disease and health problems in connection with the regular lecture courses, and independently when and where desirable. These lectures will be similar in character to those made popular by anti-tuberculosis organizations, the American Medical Association, etc.

Last year an experiment was made in promoting courses of didactic instruction to physicians in the newer aspects of bacteriology, physiology and chemistry. The classes were organized by salaried employees of the district organizations. Those who registered for the courses were charged a fee to cover the cost. It was significant that physicians, who never attended regular medical society meetings, paid for their admission and were most regular in their attendance throughout the courses of six lectures each, extending over as many weeks.

Study groups amongst physicians, nurses, teachers, engineers, etc., will be organized in the larger centers, particularly in the well organized districts of the Extension Division.

Publication.

Bulletins, Circulars, etc.—It is the intention to publish bulletins from time to time, which will be similar in form to the justly popular agricultural bulletins upon domestic animals. These, however, will be concerned with the housing, feeding, and general physical management of the human species.

An underlying series is in preparation upon the following subjects: Prevention of Disease, Infant Mortality, Rural Hygiene, Insanity, Venereal Diseases.

Following the publication of these, it is the intention to double back and extend the publication by rather more detailed and specific handling of the subjects only briefly touched in the broad scope contemplated in the above publication outline.

Newspapers.—A circular letter was recently sent to newspaper editors of the state with an enclosed reply sheet, in which they were asked if they desired a regular weekly service of brief articles upon health and disease, public sanitation, private hygiene, etc. Responses from over one hundred were received, in which they agreed to run the copy under a distinctive column head. As was expected and hoped for, the rural papers were the most responsive.

Editors were asked to indicate topics upon which they desired contributions. Their suggestions have been carefully noted and further suggestions and criticisms will be earnestly sought. It is hoped that thereby we can create a larger demand, and provide a satisfactory supply.

A most encouraging feature of the response was the fact that but six asked for "boiler plate" matter. To one who is familiar with the slow, tedious and relatively costly grind of hand composition in a small office, and the amount of pretty good "telegraphic news" (received by express ready to be locked in the forms), it is apparent that there is a real demand for authoritative, readable "copy" upon health. We were repeatedly warned against long, drawn-out, academic discussions upon abstruse, scientific subjects.

Expert Consultations (Community).—The Municipal Reference Bureau, described above, has already stimulated a demand for assistance upon various phases of municipal sanitation. With better facilities for supplying the expert service, the field can now be extensively and intensively cultivated. A sanitary engineer is employed by the Extension Division, and he, and other advisers, will, upon occasion, be sent to communities to gather data and devise plans and formulate working programs.

Information Bureau.—It is to be expected that a number of personal queries will be stimulated if the various projects are as successful as is fondly hoped for. As soon as these queries are sufficiently numerous to demand it, a distinct sub-bureau of information will be unavoidable.

Correspondence Study.

Course for Local Health Officers.—Of greatest immediate interest at this meeting is the establishment of a Correspondence Course for Health Officers. Wisconsin is one of the few American Universities which is conducting a school for health officers. Not unlike the other American health officer's schools, there is a most regrettably small number of candidates for the degree of Doctor of Public Health. This is accounted for by the fact that as yet the expert health officer is not held in as great esteem as his importance would seem to warrant. The utilitarian purpose of furnishing better health officers—and through them better conditions as regard health—is thus being held in abeyance.

We are certain that there is need for more knowledge upon the part of the health officer of the small community and it seems possible that a demand may be stimulated (if it does not already exist) for a better working knowledge of the problem of public health administration.

The course is designed to cover about six weeks and to awaken an interest and open a door to further information for the student so inclined. The course is being written under the following outline:

A PROGRAM FOR CORRESPONDENCE STUDY.

Designed for Local Health Officers.

I. Laws and Regulations:

A general study of laws, board of health regulations and local ordinances for the purpose of familiarizing the officer with his powers and duties.

II. Vital Statistical Studies and Surveys:

To determine the relative importance of various disease problems.

III. Transmission of Disease:

(a) Direct (contact infection).
(b) Public and private water and sewage systems.
(c) Foodstuffs.
(d) Parasites and insects.
(e) Studies in epidemology (carriers, milk routes, vegetables, etc.).

IV. Nuisances:

(a) Garbage.
(b) Dust.
(c) Manure.

V. Administration:

(a) Inspection: markets, homes, restaurants, factories, alleys, streets, schools, theatres, depots, etc.
(b) Visiting nursing.
(c) Medical inspection of school children.
(d) Laboratory.
(e) Quarantine and disinfection.
(f) Registration.

The course is being written to be of practical assistance in the work-a-day administration of the rural and small community health board.

We earnestly beg that none shall gather the idea that we purpose making expert sanitarians by a few weeks' correspondence study. We do hope, nevertheless, to assist the conscientious official in a better administration of his trust. It is our ambition that, as time goes on, there will be a student here and there who will be awakened to the larger aspects of public health work and be led to continue his study in residence in the regular University School for Health Officers.

Medicine.—Correspondence study, I have said above, has been found, in many instances, to be equal to resident University work. If this be true, it will be only a question of time when it will be possible to offer physicians, nurses, teachers, etc., opportunities in systematic, orderly, post-graduate and research work under competent and stimulating supervision. Indeed, such courses have already been successfully given in bacteriology and hygiene, chemistry and pharmacy.

While it is true that many students can, and do, acquire splendid train-

ing without the aid of another master, most need to report to somebody at a given time in order that the quest may be consistently continued over as long a period as the pursuit of knowledge requires.

Exhibit.—A general health exhibit is now being gathered. It will consist of photographs, charts, models, etc., much the same as those which have characterized the tuberculosis, child welfare and sundry other health and welfare campaigns. It is the purpose to have the material so arranged that a single disease problem or any group of problems may be covered as indicated. A worker is devoting his time to the planning and manufacture of exhibits for the welfare department. The coöperation of various public institutions, such as sanatoria, trade schools, continuation schools, alms houses, the state's prison, reformatories, etc., is being enlisted. At such institutions, really expert assistance and workmanship, which could not be secured in the open market except at prohibitive cost, can be had. The even more important consideration is offered, that these workers are developing an interest and sympathy which must have a most wholesome educational influence. At present, a prisoner at one of the reformatories seems to have awakened a social consciousness, which, if it can be linked with his more than ordinary talent for cartooning, may return him to society as a useful and valuable leader. I hope that a manual may be issued upon exhibit making and that school children throughout the state may thus be encouraged to prepare charts, models, etc., for the education of their own communities.

Surveys.—At present, we have sufficient data, or can easily gather them from other available sources to meet general requirements. As the work develops, however, local and general surveys will be of incalculable assistance in giving point and direction ("the punch") to the instruction. To employ the limited time and money now available in research, when the existing knowledge is not being profitably utilized, would not be justified in the field that this bureau is designed to cover.

Conclusion.

Notwithstanding the length this paper has assumed, it is, even now, but a sketch of a conception to secure the coöperation and extend the usefulness of an existent and splendidly efficient educational machine. In recognizing its responsibility for ignorance, and in assuming its obligation to instruct, it would seem as though the University has taken a great stride toward the ultimate solution of one of the state's most disheartening problems. It is not even dreamed that a lifetime will see the promise fulfilled. Indeed, it is this very consideration which gives warrant to the placing of the task and responsibility for enlightenment upon such fundamental, and practical knowledge of life and of the business of living, upon our greatest Wisconsin public school instituted by the people for the people of all time.

PUBLICITY AND THE PUBLIC HEALTH.

P. M. Hall,
Minneapolis, Minn.

Read before the Section of Public Health Officials, American Health Association, Colorado Springs, September, 1913.

At a recent New York conference on infant welfare, Dr. S. Josephine Baker, of the department of health of the city of New York, expressed the sentiment that 80 per cent. of infant welfare work is educational. It is not known by what system of mathematics Doctor Baker arrived at that particular percentage, but it is fair to assume that she did not place it any too high. It was shown at that meeting that probably greater advances had been made in the control of infantile diseases, both in the morbidity and the mortality, than in those of any other age period. Is it fair to assume that such excellent results have been brought about by the 80 per cent. of publicity?

Some recent statistical studies made from the recorded vital statistics for the state of New York brought out very prominently the fact that while up to forty years of age the expectancy of life has increased, this is not true with respect to the age periods beyond forty. Is it not probably true, then, that with a higher per cent. of education and publicity in all matters pertaining to public health—better food, personal and community hygiene, occupational diseases and the diseases of habit—better results above forty years of age might be attained?

It is safe to say that all public health work is, or should be, educational. I speak from experience both on the inside and what might be termed the outside of public health work. The public is eager to receive such education. It is apparent that within the last few years there has been a great awakening of interest in public health matters. Social workers, sanitary engineers and earnest lay workers are keeping pace with, if not actually outrunning, the regular, orthodox public health official. So I have thought it would be of some interest to this section to discuss in a brief way the relations between publicity and the public health.

My first awakening to the great benefits of publicity came in the year 1911. For nine months I had worked diligently to have the city council pass a new milk ordinance, only to see my pet project go down to defeat. The very next day the city editor of one of our prominent dailies made the proposition to me to conduct a column of instruction in the care of infants, to be known as "The Baby's Friend." This column, running through both morning and evening editions, was maintained with a daily change of

subject from early in June until September. In addition to a lead article, questions pertaining to the care and treatment of children were answered.

The effort met with immediate public favor, and I realized for the first time that I could reach the ears and understanding of the mothers of the 7,000 babies born in the city during the previous year. For a number of years the department of health had distributed the usual circular of information through the mails to the mother of every infant reported by the birth returns. This circular was the usual one, familiar to you all. But here was a medium turning out fresh, live material every day, brightened up by accounts of actual happening and local conditions, to point out the moral. The response was instant, immediate and unanimous. Nobody dissented. Everybody was pleased and it was with regret that the column was brought to a close in September.

The following year, 1912, the column was again maintained, meeting with increased favor. There was a material reduction in the number of deaths among infants for 1911 and still greater and better results along the same lines for 1912. We have been pleased to think that possibly the educational effort carried on through the *Tribune* had something to do with bringing about the result. And now that Doctor Baker has said that educational work constitutes 80 per cent. of the effort, we assume that the results were in a large measure due to that publicity.

So successful was the maintenance of the column that in November of 1912 the *Tribune* began a column of public health instruction under the title of "Health and Happiness," which has now become a regular feature of the paper. The *Minneapolis Tribune* was preceded in this field by the splendid work of Dr. W. A. Evans in the *Chicago Tribune*. To this distinguished apostle of health publicity we gladly give credit, as the pioneer in this work. The work of public health owes much in its rejuvenation to Doctor Evans. I venture the remark that no single effort has had more to do with the awakening along public health lines than the work he has done.

The last effort of the *Minneapolis Tribune* met with even greater success than was anticipated. From my humble connection with this work, I can say there are some things we have learned: First and greatest, is the eagerness with which the public has received the proffered instruction. The articles are read, cut out and treasured. The discussion of special topics has been eagerly sought and frequently asked for. The inquiries have been from all quarters and all grades of society. They have been for the most part intelligent, showing an earnest interest in the subjects discussed. This we have not considered as in any sense a personal tribute to the editor, but to be due entirely to the eager desire of the public to be informed. The idea has ever been kept in view that the articles should be instructive, rather than entertaining, and that they should express views and opinions that were sound and conservative.

Secondly, it has seemed that the popularity of the column has in a large measure been due to the fact that the information was given out by a medical man. The public is discriminating and while it may be entertained by the magazine lay writer on medical topics, it accepts the same merely as a good story. But when it comes to instruction in matters which pertain to right living, proper diet, etc., it will listen to a medical man as it will to no other. In this way, it is thought, publicity of this sort has done a great deal in turning the minds of the people back to the medical man as their natural medical adviser.

Thirdly, one of the greatest benefits has been the directing of attention to the evil effects of patent medicines and quack doctors. The ill effects of the recent tuberculosis cure were largely discounted all over this country by public health publicity. Bulletins of the departments of health, both city and state, informed the public of the true character of the alleged cure and the mischief which might have been done was largely averted.

Medical advertisements are being revised or dropped as public interest and the new awakening show better things. When it is considered that, as in the *Tribune*, 100,000 readers may be reached every day, and 160,000 in the Sunday edition, something of the enormous possibilities of educational work may be realized. When it is considered, too, that up to the present time hygienic instruction in the public schools has been meager, the possibilities of newspaper public health publicity loom large. It can be and is made the Macedonian cry in the Wilderness, for all new hygienic thought.

With a full knowledge of public health work, with twelve years of such experience behind me, I can truthfully say that in publicity the opportunities of doing real, effective public health work have broadened; that whereas we spent twelve years doing the 20 per cent., we are now in the more efficient position of doing even more thoroughly the 80 per cent. of educational work along enlightened lines, without one hampering drawback. An esteemed member of this organization once told me that he had an automobile which had fifty "exasperators." At that, I venture, the exasperations of his official position exceed in number those on his machine.

I, therefore, commend to the members of this association an extension of their publicity work, not only through their bulletins, but through the public press. The day is not far distant when every metropolitan newspaper will have its health editor as well as its dramatic, society or sporting editor.

PUBLICITY: SOME OBSERVATIONS ON ITS USES AND MISUSES.

J. Scott MacNutt,
Orange, N. J.

Read before the Section of Public Health Officials, American Public Health Association, Colorado Springs, September, 1913.

The power of publicity has recently been strikingly illustrated in the widespread curiosity aroused among the general public and the agitation caused among thousands of tuberculosis sufferers by the newspaper notoriety of the alleged Friedmann cure. Could the health officers of this country give to a single important principle of hygiene the prominence achieved in a few days by that phenomenon, the saving in health and life would be incalculable. The forces of commercialism leave no stone unturned to find the most effective publicity methods, and by their skillful use of them outstrip by far those who should show an even greater enterprise in advertising for civic welfare and the good of humanity. The business school has its course in publicity; why should not the modern school of the health officer?

I take for granted that every board of health should carry on a constant, systematic, and more or less extensive campaign of publicity. Of course the places for sanitary education to begin are the home and the school. Only those institutions can lay the deep and firm foundations necessary for the hygienic welfare of the nation. But the education there may in many cases have been inadequate, and there are many other reasons besides why public health authorities should at the present time carry on publicity work with the purpose of obtaining action—or more frequently avoidance—on the part of the individual, either for his own personal safety or for the facilitation of administration.

A speaker before this association last year * proposed a suggestive analogy according to which the conception of Pasteur, that "it is within the power of man to cause all germ diseases to disappear from the earth," was to be capitalized and carried on as a commercial enterprise of the most profitable order. In the plan, publicity operations took a most important place. Now under the assumption that this is a meeting of the directors of that enterprise, the question naturally arises, "Are we doing our publicity work—our advertising—efficiently?"

This matter of advertising—of publicity made to pay—is not a simple one. Commercial advertisers used to think so until they found themselves

* Hoyt E. Dearholt, "Educational Publicity in Offense and Defense," *Am. Journ. of Public Health*, 1912, Vol. 2, No. 12.

spending millions on costly but utterly unpsychological, and therefore ineffective, schemes. They once looked askance at the college professor who suggested a modicum of psychological theory. But advertising has now become an applied science, and those same college professors are writing its text-books. In the matter of publicity methods we health officers stand, with few exceptions, where the advertisers stood some time ago. We are too apt to consider publicity as an activity of slight technique and sure effect. We have not made the acquaintance of the professor. Still, we can take consolation in reminding ourselves that, after all, it is not wholly a discredit that we are unfamiliar with a speciality not our own. Then, too, we can readily appropriate something of the advertiser's technique.

The uses of all modes of publicity are governed by a body of related psychological principles susceptible of study and proof. This is not the place for a detailed exposition of the art; but a glance at its first principles promises profit. Let me use as an illustration of these a poster (originated by the state board of health of Florida)—dealing with the fly nuisance—which has become widely and favorably known.* To recall it to mind I need only mention the caption, "From Flies and Filth to Food and Fever," surmounting a printed description of the habits of the house fly, the text being surrounded by a wide pictorial border in which flies are seen traveling in swarms from manure pile and privy vault to baby's bottle and family table. This poster illustrates clearly the three main principles of publicity.†

First, by its simple, striking, alliterative caption and unusual "make-up" of text and picture, it *attracts attention*.

Second, by its clear and vivid presentation, both by picture and by word, of a public health danger, it *makes a lasting impression*.

Third, by stimulating the imagination and feelings as to the dangers to health from the habits of the fly, it *creates a desire to act*—to do away at once and forever with this odious insect.

Let us analyze briefly the specific means, adapted to fundamental characteristics of the human mind, by which such effects as the above are produced.

Success in gaining attention, to begin with, depends upon the strong ingrained trait of curiosity. It is the novel, even to the point of the ridiculous or the grotesque, that human nature seeks. This part of the problem

* This example is chosen mainly because of the fact that it is widely known. Others as apt may be found. In this connection the posters issued by the Chicago Department of Health and reproduced in its weekly bulletin, as well as other matters appearing in that bulletin, will well repay examination.

† These principles are taken from an article by Stephen I. Colvin, professor of psychology in the University of Illinois, entitled "The Mistakes of Advertisers," in *The Independent* for September 5, 1912. There is now a very considerable body of literature treating of publicity and advertising. As a clear and non-technical exposition of principles, *The Psychology of Advertising* by Walter Dill Scott, director of the Psychological Laboratory of Northwestern University (Small, Maynard & Co., Boston, 1910), will be found especially valuable. See also *The Principles of Practical Publicity*, by Truman A. DeWeese (2d ed., Jacobs & Co., Phila., 1908, or Vol. 7 of the Business Man's Library, The System Co., Chicago, 1910), which is written from the standpoint of the practising advertiser.

is by far the easiest to solve, though there is unlimited scope for skill in making old principles appear fresh and new. The epigrammatic "healthgrams" of the Chicago Department of Health exemplify such skill.

To gain attention, then, is not difficult, but to hold it and produce a lasting impression is a different matter. Clearness is a *sine qua non;* and it is upon this very first rock that the sanitarian in publicity sometimes founders. He is a scientific man, and science speaks in a jargon of its own. For purposes of convenience it uses a condensed, technical language, teeming with terms which are all too familiar to those who live by them but which are incomprehensible to the man in the street. They must be translated: words common must take the places of words uncommon, and plain, blunt Anglo-Saxon must be substituted for words of Latin origin. Compare in their effect upon the plain laboring man, just able to spell out words, the parallel phrases "Expectoration is prohibited" and "Do not spit."

With clearness must be reckoned simplicity, both in ideas and in language. The more popular the matter the fewer ideas can be introduced; a single point is often enough. At any rate the whole should be held together by one main idea. As to expression, idle words have no place in a statement where every word must work to the point of overstrain. The scientifically trained man has to resist the desire to explain with great exactitude and must let much go by inference. The "flies and filth" poster is not in this respect a model, for it would gain by condensation in the reading matter. Publicity rarely allows of details. Even the highly educated and rapid reader will not stop to peruse a circular or poster of more than say a hundred words on the same subject, much less carry away the sense of it all. The most effective advertisements of the day are those which rely upon a single phrase or even a single apt word for their effect. To test the underlying wisdom of this one needs only think of a few varieties of soaps, washing powders, fountain pens, cameras, and other articles of commerce and note the unconscious ease with which their respective trade mottoes slip into the mind. "Let the Gold Dust twins do your work" and the rest have become proverbs. "Swat the fly," though not a shining example of doctrine, is an admirable specimen of the epigram that roots itself in the minds of thousands.

The sanitarian in publicity has another difficulty to contend with in his tendency to miss the concrete. Public health science, though aiming at definite effects in a concrete world, nevertheless deals largely in things which require of the untrained mind considerable effort for visualization. A microscopic organism may be something pretty concrete to a bacteriologist who deals with it daily, microscopically or otherwise, but the layman's effort to visualize his descriptions has resulted in the grotesque microbe of the comic supplement. Homely analogies and emphasis on visible effects are antidotes for the tendency toward unfamiliar abstractions.

The psychologists tell us that memory, which we are here striving to make easy for the subjects of our publicity work, depends upon two things: vividness of impression and association of ideas. Discussion of the former would depend largely upon the nature of the mode of publicity used, for various kinds of impressions, visual, verbal, etc., would have to be taken into account. But association of ideas enters in much the same way into all processes. The strongest effect will be produced when the new idea to be inculcated is closely linked with an old idea already deeply rooted in the mind. A firm of tea importers has recently come out with a billboard advertisement reading "Honest tea is the policy," thereby linking to something which is a part of everyone's mental furniture a brand-new witticism—one so clever that the reader cannot help noting and remembering the name of the article which it advertises. Similarly the "flies and filth" poster forms a new set of associations, between the unfortunately familiar manure pile, etc., and the equally familiar baby's bottle and dinner table, based upon the unsanitary connection so vividly impressed.

The last, and most difficult, problem of the sanitarian in publicity is to create a desire to act in accordance with the principles set forth,—in a word, force. It is to this ultimate object that he has been leading up. Knowledge not used is knowledge valueless. Obviously, deep-rooted instincts should, if possible, be appealed to, and fortunately self-protection and solicitude for family and kin are such instincts. But there is a nobler instinct which should also be made a motive: the community feeling which in its highest transformation is charity for neighbors. The perfect result will have been achieved when the citizen acts wholly upon this motive, but it must be remembered that self-protection is the stronger. Personal or civic pride may also be effectively invoked. The problem in any case is to make the citizen feel that it is "up to *him*." It is he who composes "the public."

A word as to sensationalism. Why let the forces of evil and untruth create most of the "sensations," thereby debasing a good word and utilizing psychological forces of the greatest potency? Pasteur's threatened annihilation of all the germs on the earth, put forth as it was by a master mind of science, should have created one of the greatest sensations in history. Yet we do not hear of its having been cried through the streets of Paris, but only as an academic quotation only recently heard outside of laboratories. By all means let us have sensations in publicity—but tempered by accuracy and proportion! And let us strive to make the remedy as impressive as the evil.

Of the details of publicity campaigns, the various modes of publicity and their relative values, the necessity for persistence, and many other matters, there is no space here to speak. In any case they will depend not only upon general principles but also upon local conditions. It will readily

be admitted, I believe, that the first specific duty of the health officer in this field is to maintain, through carefully edited statements and through interviews, a good press service. After that the various other means—bulletins, circulars, other forms of literature, lectures, exhibits, and motion pictures—should fall into their proper places.

There remains, however, one inclusive means of popular education touching all classes of citizens, the ignorant and the educated, the willing and the unwilling, which deserves special mention because in the long run the most thoroughly effective in the power of the public health authorities. That is a good administration. The acts of such an administration shine through the press, every regulation enacted and enforced is a great public lesson, and every inspector and every nurse is an instructor teaching with authority. This is a fortunate fact, for, after all, efficient administration is the sum total object of the public health official. Thus through publicity it reacts beneficially upon itself. Good work made public, with the auxiliary influence of other modes of publicity, should result in the adequate support of administration through legislation, funds, and public coöperation.

IS DRIED BLOOD AS RELIABLE AS FRESH SERUM IN MAKING THE WIDAL TEST?

GUSTAV F. RUEDIGER and ROBERT HULBERT.
From the State Public Health Laboratory, University of North Dakota.

Read before the Laboratory Section, American Public Health Association, Colorado Springs, September, 1913.

There is a tendency on the part of some laboratory men and practising physicians to discredit the Widal test when carried out with dried blood, while, on the other hand, we find those who have implicit faith in it, even when performed in a kind of hit or miss fashion. There can be no doubt but that this laboratory test frequently is a valuable aid in diagnosis, provided that our findings can always be relied upon. It must also be stated that it is highly desirable that the same technic be employed in every laboratory in this country. We have always considered the test reliable when the technic employed is correct and this investigation was undertaken in the hope of getting definite data bearing on this point. According to Westbrook* a dilution of 1:25 of the whole blood is obtained by dissolving 1 mg. of the dried blood in .1 cc. of distilled water. This statement we were able to verify as is shown in Table I.

TABLE I.

SHOWING WHAT PER CENT. OF THE WEIGHT OF FRESH BLOOD IS REPRESENTED BY THE WEIGHT OF THE AIR-DRIED BLOOD.

Specimen number.	Weight of fresh blood.	Weight of air-dried blood.	Per cent. of original weight left after drying.
1	.018	.0046	25.5%
2	.023	.0063	27.4
3	.024	.006	25.
4	.061	.0148	24.
5	.0405	.0089	22.
		Average	24.78%.

Approximately one fourth of the weight of the fresh blood is left after air-drying for twenty-four hours. It is clear, therefore, that a solution of 1 mg. of dried blood in .1 cc. of distilled water makes a solution of 1:100 of the dried blood or 1:25 of the whole blood.

*Jour. Infect. Dis. Supplement 1, p. 316.

Westbrook recommended that the reaction with dried blood be made with a dilution of 1:25 of the whole blood. It seemed desirable to us, therefore, to test a large number of normal bloods in this dilution, to determine what per cent. of these gives an agglutination of typhoid bacilli. We

TABLE II.

SHOWING RESULTS OF AGGLUTINATION TESTS WITH DRIED NORMAL BLOODS, AND FRESH NORMAL SERA.

Blood.	Dilution and Result.			Blood.	Dilution and Result.		
	1:25.	1:50.	1:100.		1:25.	1:50.	1:100.
1	§			18	§		
2				19	§		
3	*	*	‡	20	†	§	§
4	§			21	§		
5	†	‡	§	22	*	*	§
6	§			23	§		
7	§			24	§		
8	§			25	§		
9	§			26	§		
10	§			27	§		
11	§			28	§		
12	§			29	†	§	
13	†	§	§	30	§		
14	§			31	§		
15	§			32	§		
16	§			33	§		
17	§			34	§		
	Tests with normal sera.						
Sera.				Sera.			
20	*	‡	§	29	*	*	§
22	*	*	§				

* Complete clumping with cessation of motility.
† Clumping without complete cessation of motility.
‡ Very slight clumping (suggestive reaction).
§ No clumping.

accordingly tested the dried blood from thirty-four normal individuals, who gave no history of having had typhoid fever. Six of these, or 17.6 per cent., gave a positive reaction, and two of the latter group gave the reaction in a dilution of 1:50. From three of the persons whose dried blood gave

an agglutination of typhoid bacilli, we tested the fresh serum in dilutions of 1:25, 1:50 and 1:100. All gave a positive reaction in dilutions of 1:25, two in dilutions of 1:50, and none in dilutions of 1:100. The results of these tests are shown in Table II.

We also tested the dried blood of five individuals who gave a history of having had typhoid fever from four to twenty-four years previously; and of three individuals who had been vaccinated from eighteen to thirty months previously. Three of the former and all of the latter gave a reaction when used in a dilution of 1:25. When used in a dilution of 1:50 only two of the former but all of the latter gave a positive reaction. These are shown in Table III.

TABLE III.

SHOWING RESULTS OF AGGLUTINATION TESTS WITH DRIED BLOODS FROM PERSONS WHO HAVE HAD TYPHOID, OR HAVE BEEN VACCINATED AGAINST TYPHOID.

Blood.	When typhoid or vaccinated.	Dilution and result.		
		1:25.	1:50.	1:100.
1	Had typhoid 20 years ago.	§		
2	" " 16 " "	§		
3	" " 4 " "	*	*	§
4	" " 12 " "	*	‡	‡
5	" " 24 " "	†	§	§
6	Was vaccinated 2½ years ago.	*	*	No test.
7	" " 1½ " "	*	*	No test.
8	" " 1½ " "	*	*	‡

Tables II and III show clearly that great caution must be observed in drawing conclusions from a positive agglutination test. This is becoming more important every day, because more people are availing themselves of the protection afforded by the anti-typhoid vaccination. Table II shows that a dilution of 1:25 is not permissible and that a dilution of 1:50 of the whole blood, or of the serum, is likely to give incorrect results in a small per cent. of our tests. Dilutions of 1:100 seem to give reliable results, if the patient gives no history of having had typhoid fever, or of having been vaccinated against typhoid. It must be admitted, however, that the reaction does not appear quite so early in this dilution, as will be shown in the following table.

Having made these preliminary determinations, we proceeded to determine whether or not a positive reaction can be obtained as early and as

TABLE IV.

SHOWING THE COMPARATIVE VALUE OF DRIED BLOOD AND FRESH SERUM IN MAKING THE WIDAL TEST.

Typhoid patient.	Day of disease.		Dilution and results.							
			Dried blood.				Serum.			
			1:50.	1:100.	1:200.	1:500.	1:50.	1:100.	1:200.	1:500.
1	5		§				No test.			
	6		†	‡			†	‡		
2	5		§				No test.			
	7		*	†	§	§	*	*	†	‡
Vaccinated person.	Days after initial injection.	Days after 2d injection.								
1	7		§	§			§	§		
	8	1	§	§			†	§		
	9	2	†	§			*	*	‡	§
	10	3	*	†	§		*	†	§	§
2	5		§	§			§	§		
	7		‡	§			†	§		
	8	1	*	*	*	‡	*	*	*	*
	9	2	*	*	*	‡	*	*	*	†
3	7		§	§			§	§		
	9	2	*	*	*	‡	*	*	*	†
	10	3	*	*	‡	§	*	*	*	†
4	6		†	§	§		†	‡	§	
	7		†	‡			†	†	§	
	9		*	†	‡		*	*	*	
5	6		*	§			*	‡	§	
	7		†	†	‡		†	†	‡	
	9		*	†	‡	‡	*	*	†	
6	7		‡	§			†	§		
	9		*	‡	§		*	*	*	
							§			
7	6		§				§			
	9		‡	§			*	†	§	
8	7		§	§			‡	§		
	9		†	§			†	‡		
	15	5	*	‡	§		†	*	‡	§

SHOWING THE COMPARATIVE VALUE OF DRIED BLOOD AND FRESH SERUM IN MAKING THE WIDAL TEST.—*Continued.*

Typhoid patient.	Day of disease.		Dilution and results.							
			Dried blood.				Serum.			
			1:50.	1:100.	1:200.	1:500.	1.50.	1:100.	1:200.	1:500.
Vaccinated person.	Days after initial injection.	Days after 2d injection.								
9	7		§	§			§	§		
	9		†	‡			†	§		
	15	5	*	†	‡		*	†	‡	§
10	6		†	§			†	†	§	
	7		*	*	†		*	†	‡	
	9		*	*	†	‡	*	*	*	
	6		‡	§			‡	§		
11	7		†	‡	§		†	‡	§	
	9		*	†	§		*	*	‡	
[1]12	6		*	‡	§		*	*	‡	
	7		*	†	‡		*	†	§	
	9		*	†	‡		*	*	†	
[1]13	6		*	‡	§		*	†	‡	
	7		*	†	§		*	†	‡	
	9		†	†	‡		*	*	*	
14	5½		§	§	§		†	‡	§	
	7		*	§	§	§	*	†	§	
	8½		*	†	‡	§	*	*	‡	§

[1] Blood before the injection gave a positive reaction in a dilution of 1.50.

constantly with dried blood as with fresh serum of patients who are in the early stages of typhoid fever. To settle this point it is only necessary to make Widal tests at frequent intervals with both the dried blood and fresh serum (in the same dilution) of these patients during the first and second weeks of the disease. Unfortunately, we did not have an opportunity to study the blood of more than two patients in this manner, but we vaccinated a number of persons against typhoid and kept close track of the appearance of the agglutination reaction in the dried blood and fresh serum of fourteen vaccinated persons. The results of our tests are shown in Table IV.

The table shows that dried blood gives a positive reaction just as con-

stantly as fresh serum. In no case did we fail to get a good reaction with the dried blood when we got a reaction with the fresh serum, but in a large proportion of the cases, the reaction with a dilution of 1:100 of dried blood appeared about a day later than with the same dilution of fresh serum. It will be noticed, however, that this is due solely to the dilution. If the serum gave a reaction in 1:100 dilution on a certain day and the dried blood failed to give it, the latter would bring about clumping if used in a 1:50 dilution. If, therefore, we were making all tests with a 1:100 dilution, a positive

TABLE V.

Specimen No.	Age of dried blood.	Dilution and result.			
		1:50.	1:100.	1:200.	1:500.
Patient 1	1 day	*			
	3 days	*			
	5 days	†			
Patient 2	1 day	*			
	3 days	*			
	5 days	†			
Patient 3	1 day	*			
	3 days	*			
	5 days	*			
Vaccinated 1	1 day	*	†	§	
	5 days	*	*		
	15 days	*	†	§	
	69 days	†	§		
Vaccinated 2	1 day	*	*	*	§
	5 days	*	*	†	
	15 days	*	*	‡	
	69 days	*	*	No test.	
Vaccinated 3	1 day	*	*	‡	
	5 days	*	*	‡	
	15 days	*	*	‡	
	69 days	*	*	No test.	

reaction would often be obtained a day later with dried blood than with fresh serum. In all our experiments the blood was collected on pieces of aluminum foil and air dried for about twenty-four hours, whereas the serum was used within a few hours after it was obtained from the person. All dilutions of dried blood were made by accurately weighing out from 2 to 5 mgs. of the material on a chemical balance and dissolving it in .5 per cent. saline solution in a small test tube. It is quite immaterial how much of the dried blood is weighed out as we add to it .2 cc. of salt solution for every milligram of dried blood. This gives a fairly accurate dilution of 1:50,

and the weighing requires very little time. We do not believe that the dilution can be judged accurately enough by the color to give dependable results. If the test is worth making at all it is worth the small amount of extra time required for weighing the specimen and having it right, instead of guessing at it and allowing the test to fall into disrepute among those who use the laboratory. After adding the salt solution to the blood, the mixture was allowed to stand for thirty minutes, with occasional agitation. It was now centrifugated for a few minutes in a rapid centrifuge, and hanging drops made by placing two loopfuls of the clear liquid on a cover glass and adding a very small loopful of a twenty-hour typhoid culture. The preparations were placed in the incubator for one hour before examination. Our large loop for the blood solution is two millimeters in diameter inside, and the small loop for the culture is about three fourths of a millimeter in diameter.

It seemed an interesting problem to determine how long the agglutinating property is preserved in specimens of dried blood. We, therefore, preserved six specimens of dried blood in clean Petri dishes and determined their agglutinating power at intervals of several days with the results shown in Table V.

Our results show that there is no appreciable deterioration of agglutinins in a specimen of air-dried blood during the first five days. In fact, we did not get much evidence of deterioration after two weeks. In routine work of the state laboratories, probably all specimens are used within three days after collection, and there is no danger of deterioration in that space of time.

Conclusions.

We believe that the following conclusions may be drawn from this investigation:

1. Dried blood is as reliable as fresh serum for making Widal tests, provided that the blood is properly collected and dried on pieces of aluminum foil.

2. Dried blood must not be used in dilutions of 1:25 of the whole blood. Dilutions of 1:50 appear to give a small per cent. of incorrect positive reactions and we, therefore, recommend that dried blood be used in dilutions of 1:75 of the whole blood. In this dilution the reaction will appear about one day later than in the same dilution of fresh serum.

3. Dilutions of dried blood should be made by weighing out several milligrams of the material and dissolving it in .3 cc. of .5 per cent. salt solution for every milligram of dried blood.

4. Agglutinins in dried blood do not appreciably deteriorate in two weeks and hence there is no danger of having the specimen spoil while in transit.

5. No conclusions can be drawn from a positive Widal reaction with the blood of a person who has been vaccinated against typhoid within at least two and a half years, or who has previously had the disease.

VITAL STATISTICS IN SOME MUNICIPAL REPORTS.

CRESSY L. WILBUR, M. D.

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Read before the Joint Session of the Sections of Municipal Health Officers and Vital Statistics, American Public Health Association, Colorado Springs, September, 1913.

The importance of vital statistics in the work of the municipal health officer may be judged from the amount of space given to this subject in the printed reports and bulletins of our city health departments. I have recently made an examination of the annual reports and bulletins emanating from the cities of 50,000 population and over in the United States, according to the census of 1910, and prepared a table showing some of the conditions found.

There were 109 cities of this size, out of which number the annual reports of eighty-six were available for either 1910, 1911, or 1912. In these eighty-six reports there were about 6,395 pages devoted to matters of public health, of which 1,782 pages, or 27 per cent., consisted of tables or discussions of vital statistics. The fact that over one fourth of the permanent printed records of the activity of the municipal health departments of the country consists of vital statistics would seem to indicate that great care should be taken to make such records accurate, precise, and thoroughly comparable with those of other cities, of the states, and of the nation. Yet it is extremely difficult, in a very large proportion of cases, to obtain exact information in regard to some of the most elementary facts, such, for example, as the total number of births (living births, exclusive of stillbirths), the total number of deaths (again exclusive of stillbirths but inclusive of all other deaths of children born alive that occurred in the area under consideration), or the causes of death (properly compiled in accordance with the International List, and hence *comparable* with the statistics of other offices). I may summarize briefly some of the facts brought out with reference to a few important items on which there should be uniformity:

SUMMARY OF EXAMINATION OF CITY REPORTS.

Total number of cities having a population of 50,000 or over in 1910	109
Annual reports available for 1910 or later	86
Report year identical with calendar year	70
Fiscal or other year than calendar employed (very undesirable)	16
Total populations as given in sixty-seven city reports	21,211,743
Total populations in census reports for same cities and years	21,061,759

Total deaths in sixty-seven city reports	326,884
Total deaths, stillbirths only excluded, in corresponding census returns	326,505
Total death-rate based on sixty-seven city reports	15.4
Total death-rate (stillbirths excluded) based on census returns for same cities and years	15.5
Number of cities whose annual reports (main tables of deaths)—	
State that stillbirths are included in total deaths	12
State that stillbirths are *not* included in total deaths	24
Fail to make an explicit statement as to inclusion or exclusion of stillbirths	50
Classification of causes of death:	
International List (Second Decennial Revision, in effect January 1, 1910)	38
International List (First Revision, in effect from 1900 to 1909; should be replaced by Second Revision)	17
Other classification than International or no classification	31
Total pages relating to public health in eighty-six reports	6,395
Tables and text relating to vital statistics	1,782
Per cent	27

It is difficult to make and maintain a complete collection of the annual health reports, even of our larger cities. In some instances reports may have been published, although they were not obtainable by the census. The summary includes only eighty-six annual reports, instead of one for each of the 109 cities in the group.

The general appearance of the "five-foot shelf" containing these reports is, on the whole, favorable. Some of the reports are published individually, others as part of the annual volumes of city documents. For convenience, it is desirable that the matter relating to public health and including the vital statistics should be available separately, at least in a limited edition. It is favorable to the adoption of uniform tables for city reports that practically all the publications are of the common octavo size. The only exceptions noted are the annual reports of Hudson County, N. J. (pamphlet form, including Jersey City, Hoboken, etc.), New York, and St. Louis, which slightly exceed the usual dimensions.

At the outset one is met by the difficulty that a considerable proportion (nearly one fifth) of the eighty-six reports examined are for years other than the calendar year. This makes the compilations practically worthless for many purposes of comparison—unless the reader cares to go to the trouble of a recompilation of the data, when possible, by calendar years—and involves special estimates of population for the middle of the fiscal or other year used, if precise rates are to be obtained. Of course this condition is

a relic of the practice of making the reports on vital statistics conform to the other reports made for the fiscal year. Some states formerly compiled their registration reports for fiscal or other odd years, but the practice has generally—I believe entirely—been discontinued. I would recommend that all city reports on vital statistics adopt the calendar year as a basis. In many cases there would be no difficulty and no legislation necessary if the city health officer should decide to adopt this plan. The sixteen cities of 50,000 or over that used other than the calendar year are the following:

Los Angeles, Cal.	St. Louis, Mo.
San Francisco, Cal.	Paterson, N. J.
Louisville, Ky.	Trenton, N. J.
Portland, Me.	Albany, N. Y.
Holyoke, Mass.	Schenectady, N. Y.
Detroit, Mich.	Dallas, Tex.
Grand Rapids, Mich.	Houston, Tex.
Kansas City, Mo.	San Antonio, Tex.

The general comparison with respect to the populations employed in the annual reports as the bases of vital rates is very satisfactory. The sixty-seven cities for which comparisons were available showed an aggregate of estimated population (21,211,743) only slightly in excess (0.7 per cent.) of the corresponding figures (21,061,759) in the census publications. Possibly a greater difference would be shown at a period more remote from the date of the census. There would seem to be little tendency to over-estimate.

The total number of deaths for the same group of sixty-seven cities (326,884) also slightly exceeded the number compiled by the census for the same cities and years (326,505). The difference, only 379 deaths, may not fully represent deaths not returned because the figures for certain city reports include stillbirths. The death-rates based upon the city and census compilations are practically identical, namely, 15.4 and 15.5 per 1,000, respectively.

Of the eighty-six cities considered, twelve include stillbirths in their tables of deaths. This is contrary to Rule No. 4 adopted by this association in 1908 and to prevailing statistical practice at home and abroad. It is to be hoped that the cities embraced in the following list will discontinue the inclusion of stillbirths in their tables of deaths:

Denver, Col.	Allentown, Pa.
Evansville, Ind.	Johnstown, Pa.
Indianapolis, Ind.	Reading, Pa.
Covington, Ky.	Pawtucket, R. I.
Grand Rapids, Mich.	Dallas, Tex.
Youngstown, Ohio.	San Antonio, Tex.

It is still more unfortunate that many cities (fifty in number) do not comply with the rule of practice (Rule No. 14 adopted in 1908) requiring a definite statement as to the exclusion of stillbirths in the headings of the main tables relating to deaths. Nothing is more annoying and perplexing than to be uncertain in this respect when endeavoring to compare data from various cities, and the rule should be strictly followed in the preparation of all reports and bulletins relating to births and deaths. In only twenty-four of the eighty-six reports were the headings explicit in this respect. Following is the roll of honor:

San Francisco, Cal.	St. Louis, Mo.
New Haven, Conn.	Manchester, N. H.
Chicago, Ill.	Cincinnati, Ohio.
Peoria, Ill.	Columbus, Ohio.
Terre Haute, Ind.*	Toledo, Ohio.
Baltimore, Md.	Charleston, S. C.
Boston, Mass.	Memphis, Tenn.
Fall River, Mass.	Nashville, Tenn.
Lawrence, Mass.	Houston, Tex.*
Springfield, Mass.	Salt Lake City, Utah.
Worcester, Mass.	Richmond, Va.
Detroit, Mich.	Spokane, Wash.

Another and most important feature of a city mortality report is the statistical classification of causes of death. The adoption of the International system, as recommended by this association at Ottawa in 1898, first rendered possible the general comparability of international mortality data. The classification has twice been revised since then, first at Paris in 1900, for use during the ten years 1900 to 1909, and again at Paris in 1909 (Second Decennial Revision), for use during the decade beginning January 1, 1910. The use of the first revision should have been discontinued after the second revision went into effect, nevertheless we find a considerable number of city offices (seventeen) still using the old form. Some of the offices attempting to make use of the International List, either in its original or revised editions, have seen fit to modify it, sometimes even adding new divisions or groups, so that the purpose of uniformity and comparability is entirely or largely defeated. Other offices (thirty-one) have not yet, apparently, realized the necessity of using the uniform and accepted system; some of these employ systems of local origin, obsolete classifications, or even mere alphabetical lists.

With all the aid afforded by the Manual of the International List of Causes of Death, published by the Bureau of the Census, satisfactory assignment of terms is extremely difficult and requires much professional

*Premature births are also excluded.

knowledge and technical training. Hence competent city registrars are necessary, and even with these a certain amount of discrepancy may exist on account of differences of classification of causes jointly returned. The full and satisfactory solution of the problem is not yet in sight, but the course of improvement will surely lie in the adoption and conscientious use of a uniform list by capable officials.

There are many other features of importance to which I might call your attention, but I believe that it will be better to leave the subject with weight upon only a few principal items, namely:

(1) Adoption of the calendar year when that is not in use.

(2) Strict adherence to the Rules of Statistical Practice recommended by this association with respect to the statement of total births and total deaths, with exclusion of stillbirths but with the inclusion, for deaths, of *all* deaths of persons born alive, even of the youngest infants, whether prematurely born or born at full term, provided they *lived* any time whatsoever.

(3) Use of the International List of Causes of Death in its latest revision. The abridged form can be used if desired, or it can be expanded without loss of comparability, as shown in the excellent tables presented in the reports of San Francisco and Washington. A reprint of the Manual of the International List, with some additions, is now in press and a copy will be sent to all registration officials requesting it.

What is the value of the vital statistics that constitute over one fourth of all the reports on public health published by our city administrations? Certainly not as great as it should be, but still sufficient on the whole to warrant much more than the attention that has been given them, There is an ample field for statistical work, and statistical work of the highest character, in the study of the vital statistics of individual cities. Each city is a problem in itself and one which the state registration service, much less the Federal service, can touch only in a few high places. Even the available data are not fully employed, and we have few city reports that begin to work up the material at command as fully as do those of the more advanced foreign countries.

THE NEW VITAL STATISTICS LAW OF NEW YORK STATE.

EUGENE H. PORTER, M. A., M. D., Dr. P. H.,
State Commissioner of Health,
Albany, N. Y.

Read before the Section on Vital Statistics, American Public Health Association, Colorado Springs, September, 1913.

We all realize the importance of the complete registration of births and deaths. While we have been able to bring about a satisfactory registration of deaths occurring in New York State under the present registration laws, we have long felt the need of a more stringent law, properly enforced, if we were to succeed in obtaining complete returns of births.

The State Department of Health for several years past has recommended legislation to correct existing defects in our laws, but, as you know, questions affecting the public health are among the last to receive attention from the legislature, and each year has seen the legislature adjourn without having enacted the legislation desired.

The legislature has finally given us the desired power by the enactment of Chapter 559 of the Laws of 1913, amending the Public Health Law generally. The state commissioner of health is now charged with the general supervision over the work of all local health authorities in the state, and with the enforcement of the Public Health Law and the State Sanitary Code, excepting in the City of Greater New York.

Following the enactment of the general revision of the public health law came the important task of securing an effective registration law, and just before the close of the legislature a law conforming closely to the provisions recommended in what is known as the "Model Registration Law" was enacted, constituting Chapter 619 of the Laws of 1913.

The new vital statistics law places the registration of births, deaths, and stillbirths under the immediate supervision of the State Department of Health and applies to all registration districts in the state outside of the territory comprising Greater New York.

Each town, village and city constitutes a separate registration district, but the state commissioner of health may combine two or more primary registration districts to facilitate registration.

Present registrars of vital statistics will serve until the first of next year, when the new law goes into effect and appointments will be made for a term of four years. In towns, the registrar will be appointed by the town board, in villages by the village board of trustees, and in cities, unless the

city charter provides otherwise, the registrar will be appointed by the mayor.

The public health council is authorized to prescribe the qualifications of local registrars, as well as the health officers and district sanitary supervisors, who are charged by law to aid in making the registration of births and deaths complete in each registration district.

Local health officers are eligible for appointment as registrars, and if so appointed and if receiving a salary as health officer equivalent to fifteen cents per inhabitant of the registration district, shall serve as registrar of vital statistics without extra compensation.

Local registrars are authorized to appoint a deputy and sub-registrar, if deemed necessary, with the approval of the state commissioner of health.

Each such registrar is charged with the strict and thorough enforcement of the law, and must report any violation of the law immediately to the state commissioner of health, who shall report cases of violation to the district attorney of the county in which they occur, and the district attorney is required to forthwith prosecute such violations. Upon request of the commissioner of health, the attorney-general of the state is required to assist in the enforcement of the provisions of the law.

Any registrar, deputy or sub-registrar, who, on the judgment of the state commissioner of health, fails or neglects to discharge efficiently the duties of his office, or fails to make prompt and complete return of births and deaths to the State Department of Health, within the time prescribed by law, shall be forthwith removed from office by the commissioner of health.

If the local registrar fails to enforce the law requiring the prompt reporting of births and deaths, and to file certificates of same with the state commissioner of health on or before the fifth of each month, the state commissioner of health is authorized to send a representative to take charge of the local registration and secure complete registration in such district, the expenses incurred thereby to be paid by the town, village or city comprising the registration district.

Each registrar is required to carefully examine each certificate of birth or death, when presented for recording, in order to ascertain whether the record is made out in accordance with the provisions of law and instructions of the state commissioner of health, and no certificate shall be accepted until properly filled out.

Physicians and midwives are required to file certificates of births attended by them with the local registrar withing five days after the birth occurs.

Whenever the certificate of a birth of a living child is filed with the registrar without the given name of the child, the registrar is required to send a supplemental report blank to the parents who shall fill out same, giving the name of the child in full, and file the record with the registrar, as soon

as the child is named, and such record shall be entered upon the birth register and filed with the original certificate of birth.

All superintendents or managers, or other persons in charge of hospitals, almshouses, lying-in or other institutions, public or private, to which persons resort for treatment of diseases, or confinement, are required to make a record of all of the personal and statistical particulars required in the forms prescribed by the State Department of Health for the registration of births and deaths, and every birth or death occurring in such institutions must be promptly reported by the attending physician.

When deaths occur without medical attendance, and the circumstances of death do not tend to show death due to unlawful act or neglect (in which case the matter should be referred to the coroner), the health officer is required to investigate and certify as to the cause of death.

Undertakers are required to obtain the medical certificate of death from the attending physician and after obtaining the family history and other information necessary to complete the record, over the signature of the informant, file the certificate of death with the registrar of the district in which the death occurred, and obtain a burial or transit permit before removing the corpse for burial.

Physicians are required to use greater care in filling out certificates of death, giving the cause of disease in sequence of causes resulting in the death. Indefinite terms, denoting only symptoms of disease or conditions resulting from disease, shall be held insufficient, and local registrars must not issue a burial or transit permit until the physician files a definite and satisfactory statement as to cause of death.

All births and deaths must be reported on blank forms prescribed by the state commissioner of health and furnished local registrars by the department without cost. Midwives are not allowed to sign certificates of death for stillborn children.

The body of any person whose death occurs in the state, or which shall be found dead therein, shall not be interred, deposited in a vault or tomb, or cremated or otherwise disposed of or removed from or into any registration district, or temporarily held pending further disposition more than seventy-two hours after death, unless a permit for burial, removal, or other disposition thereof shall have been properly issued by the registrar of vital statistics of the registration district in which the death occurred or the body was found.

No such burial or removal permit shall be issued by any registrar until, when practicable, a complete and satisfactory certificate of the death has been filed with the registrar. In case death occurred from a communicable disease, no permit for the burial, removal or other disposition of the body shall be issued by the registrar except to an undertaker duly licensed under the provisions of Chapter 71 of the Laws of 1913.

The state commissioner of health is required to furnish local registrars with a list of diseases which are considered infectious or contagious, so that when a death occurs from such disease proper precautions may be taken to prevent their spread.

No person in charge of any premises on which interments or cremations are made shall inter or permit the interment or other disposition of any corpse unless it is accompanied by a burial, cremation or transit permit. They are required to keep a record of all bodies interred or otherwise disposed of on the premises under their charge, giving the name of deceased, date and place of death, date of burial or disposal, and name and address of the undertaker, which shall at all times be open to public inspection. Where there is a cemetery or burial ground having no person in charge, the undertaker is required to file such report with the local registrar within three days after burial takes place.

Every physician, midwife and undertaker is required to register his or her name and address with the registrar of the district in which he or she resides, or may hereafter establish a residence. At the close of each year the local registrars are required to file such list with the State Department of Health. No registration fee is charged.

Under the new law the fee of twenty-five cents formerly allowed physicians for reporting births and deaths has been cut out, such service being required by law as a part of their professional duties, and physicians being protected by law in the practice of their profession owe it to the state to promptly report every birth and death, as well as cases of communicable diseases, to the local registrar and health officer, to protect the public health.

Local registrars are entitled to a fee of twenty-five cents for each birth and death certificate, properly filled out and recorded in their register, if the returns are forwarded to the State Department of Health within five days after the close of each month; and, no certificates being recorded during any month, the registrar is entitled to a fee of twenty-five cents for reporting such fact to the State Department of Health.

All certified copies of birth and death certificates must be obtained from the State Department of Health, and are to be furnished by the commissioner of health upon receipt of a fee of one dollar for each record furnished under the law. A fee of fifty cents for each hour or fractional part thereof spent in making searches for records not found on file in the department, or for which no certified copy is requested, is to be paid by the applicant for such record.

If any time within ten years of the birth, or one year of the death of any person within the state, a certified copy of the certificate of such birth or death is required, and it shall be found that the original certificate of such record is not on file in the department, the state commissioner of health shall immediately require the physician or midwife who was in attendance

and filed or neglected to file the certificate thereof, if he or she be living, to obtain and file at once with the local registrar such certificate in complete form as the lapse of time will permit, together with a fee of $5, which shall be transmitted to the state commissioner of health and accounted for as a fee for certified copies.

It is the purpose of the State Department of Health to see that the provisions of the new vital statistics law are rigidly enforced. With the complete registration of births and deaths occurring in the state and the additional powers conferred upon the department by our new health laws, we hope to take a great step forward in public health work during the next few years.

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TUBERCULOSIS AND HOUSING.

"Tuberculosis and bad housing have long been bed fellows," writes Phillip S. Platt, M. A., of Scranton, and he goes on to say that it is very easy to have such a scape-goat but, at the same time, it is wise to look more deeply into the question and face the facts frankly. The question which he takes up directly is "Does bad housing as expressed in room overcrowding produce or favor tuberculosis? Is the death-rate higher in bad buildings?"

The figures of such congestion have been assembled by various authorities and from them come some curious facts. Glasgow with twenty-six times as large a proportion of one-room tenements as Belfast, and with fifty times as many persons in one-room tenements with five or more occupants each, has a mortality rate for consumption 43 per cent. lower

than that of Belfast. It is realized that Scotland has conditions of bad housing, but in spite of them there is a marked decrease in Scotland's phthisis. In Paris the housing conditions are considered very bad. One-fourth of the whole number of families in the city live in one room and three-fourths in three rooms or less. In Berlin one-half the families live in single rooms. In the former the consumption rate has remained stationary; in the latter the rate has decreased in twenty-five years about 45 per cent. In Norway the phthisis rate has increased by nearly 40 per cent., while there has been a lowering of the number of one-room tenements, by nearly 33 per cent. New York in spite of its very dense population has been able to reduce its tuberculosis death-rate enormously and the same or greater improvement is noticeable in Boston. Summing up the matter, improvements in housing accompanies mortality decrease in England and Scotland but with increasing rates in Ireland and Norway, stationary rates in Paris and great decrease in Germany, Berlin, and New York. There are, of course, other factors but such facts as these suggest caution in arguing the effect of crowded houses.

Taking up another aspect of the health problem, the general and the infant mortality, the district figures of Boston are of exceeding interest for it is shown that, although better general health is evident in districts that are sparsely settled, it is the districts that are moderately congested that furnish the highest mortality rates. In 1911 and 1912, Ward 7, which has thirty-eight persons to the acre, showed the highest total mortality of any ward in the city. Ward 8, the most crowded, with one hundred ninety persons per acre, had the lowest total mortality (in central wards) save one in 1911 and 1912, the lowest infant mortality in the first-named year and next to the lowest in 1912. These comparisons are in districts of moderate and greatest congestion. Not only in Boston but in Glasgow and other important cities of the world has attention already been diverted from crowded houses to other causes and it is evident that the question of race-component may be a more important one than the question of housing.

For decency's sake, for morality and for ethical reasons, the demand for better housing should never cease, but sanitarians must begin to divert their attention to racial and other factors of population.

Correction in Article on School Ventilation in New York City Schools.

Through an error in computation, the estimates of mouth streptococci in New York schoolroom air, cited in my article on School Ventilation in New York City in the AMERICAN JOURNAL of PUBLIC HEALTH, November, 1913, page 1160, were based on the total volume of air filtered (868 cubic feet), whereas only one-fifth of each cubic foot was actually examined for these organisms. Where it is stated that six streptococci were found per 100 cubic feet of air the figure, therefore, should be thirty instead of six. The average numbers for the individual schools range, for the most part, between 10 and 35 per 100 cubic feet. In the crowded school in a poor district the number was 75, and in the school in the good, semi-suburban district no streptococci were found in 8 cubic feet. The ratio of mouth streptococci to total bacteria should be 1-320 instead of 1-1600. *C.-E. A. Winslow.*

THE ESTABLISHMENT OF A SANITARY INDEX BASED UPON CERTAIN SPECIFIC MORTALITY RATES.

WILMER R. BATT, M. D.,
State Registrar, Pennsylvania.

Read before the Joint Session of the Sections on Vital Statistics and Municipal Health Officers, American Public Health Association, Colorado Springs, September, 1913.

General mortality rates are truly the hope and despair of sanitarians. They are the first fruits of the accurate registration of deaths, and as such are exceedingly precious. Their importance is fundamental, and not to be denied or under-estimated, as their achievement marks the first goal of an ambitious public health service.

They have, however, very decided limitations, which become quite apparent when comparisons based upon them are attempted between countries, states or municipalities.

Recognizing the fact that age and sex exert a very decided influence upon general or crude mortality rates and that certain localities are, by reason of an unfavorable distribution of population concerning these two factors, entitled to a credit, when their general death-rates are compared with localities more fortunately situated in these respects, efforts have been made to equalize these differences by computing corrected death-rates based upon a standard distribution of population in so far as sex and age are concerned.

The registrar-general for a number of years has done so for the principal towns of England, and, more recently, for the principal European countries.

The Federal census office in the bulletin on mortality for the year 1911 has done the same for the states and principal cities of the registration area, using the standard million population of England as a basis, as this was found to agree very closely with the sex and age distribution of the United States as a whole, as shown by the census of 1910.

The term "corrected," which has been used to designate these calculated rates, will, at the suggestion of Doctor Wilbur in *Mortality Bulletin No. 112*, be changed to "standardized," by the English authorities, as the latter term more truly indicates the process involved; and, as the registrar-general emphasizes in his report for 1912, it is quite possible that refinements other than in age and sex may soon be acquired.

These results are admirable so far as they go, and illustrate the growing tendency to more intensive inquiries into special factors which contribute definitely to mortality rates.

It must be quite apparent, however, from a comparison of the general and standardized death-rates of the several countries of Europe, as contained in the registrar-general's report for 1911, that the several nations possess widely varying rates entirely independent of sex and age distribution.

Thus, Russia with a crude rate of 32.80 and a standardized rate of 28.61; Hungary with a crude rate of 26.34 and a standardized rate of 24.87; Austria with a crude rate of 24.83 and a standardized rate of 23.12; and Italy with a crude rate of 22.72 and a standardized rate of 20.23, are in marked contrast with England's rate of 17.16, Belgium's crude rate of 18.53 and standardized rate of 17.68, and Sweden's crude rate of 16.78 and standardized rate of 13.88.

When we consider that it is from the countries first mentioned, with their high crude and high standardized rates, that the United States has drawn largely by immigration, and that these immigrants with distinct racial habits have concentrated in a marked degree in certain states and municipalities,—it is quite evident, if we would equalize for purpose of comparison, that there should be a further correction for nativity in the various portions of the United States, where the percentage of foreign born ranges from 1 per cent. in the South Central group of states to 27.7 per cent. in the New England, and 25 per cent. in the Middle Atlantic states.

It is likewise true that our southern states would be entitled to a correction based upon color, as the negro race has a distinct mortality rate, and the distribution by color ranges from 1 per cent. in the Northeastern to 33 per cent. in the South Atlantic group.

We know also that industries have a decided influence on mortality rates, and that certain of our states might justly claim a correction based upon hazardous occupations.

These and similar facts would seem to emphasize the difficulties to be encountered in any attempt to establish a level basis of comparison as to mortality conditions in different places, by the correction, or standardization, of the general death-rates.

We are at the present time engaged in a sanitary warfare, but without an accepted and comparable method of measuring sanitary efficiency.

For practical purposes, it would, therefore, seem proper to concern ourselves with certain existing specific death-rates, and from these endeavor to establish a sanitary index, which, regardless of age, sex, nativity, color or occupation, would give us a very fair basis upon which to form some opinion as to sanitary efficiency.

The activities of health officials do, or should, certainly embrace a control over the communicable diseases which have a tendency to become

epidemic in character, and over mortality which is the result of definite insanitary conditions.

A sanitary index should, therefore, include deaths from those communicable diseases embraced in titles 1 to 16 of the International Classification, excluding possibly influenza, cholera nostras and dysentery. It should include deaths from tuberculosis in all forms, and the deaths of infants under one year of age. These three groups would seem to cover quite effectually the field embraced in the activities of an efficient health service.

In order to estimate, if possible, the value of such a sanitary index, a group of seven cities in Pennsylvania with populations closely approaching 50,000, and a group of ten boroughs with populations approaching 15,000 were taken, the general death-rate for each was plotted for a period of six years and below this curve the sanitary index was plotted for the same period, based upon deaths from the diseases before-mentioned. (These charts were exhibited.)

As the sanitary index takes care practically of one third of the total number of deaths, it would be quite natural to expect that it would follow, in a general way, the curves of the crude death-rate from year to year.

The fact that it does not always do so, however, gives it a special significance, and would indicate that it has a distinct value of itself, having a tendency in certain localities to "peak" when the general death curve is comparatively flat, and to descend, at times, somewhat abruptly when the general death curve takes the opposite course.

The sanitary index does present, in rather a striking way, a composite picture of sanitary efficiency, and any state official who will take the trouble to plot such a curve for the municipalities in his particular state will be very apt to find graphic evidences of inefficiency of local health administration of which he may be morally confident, but which he is at some difficulty to demonstrate from general death-rates.

It is possible that the diseases included in the sanitary index here outlined, may be modified, or, on the other hand, extended; but the thought is presented for discussion, in the hope that some efforts may be made looking to a standard of this kind.

SHALL WE CLOSE THE SCHOOLS DURING EPIDEMICS?

FRANCIS GEORGE CURTIS, M. D.,
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Read before the Massachusetts Association of Boards of Health, December 11, 1913.

Among the traditional methods of dealing with an outbreak of communicable disease which have survived from the past, closing the schools when an epidemic appears seems to have lasted longest.

One cannot read in the daily papers the account of a so-called epidemic without seeing it stated that the board of health is taking vigorous steps to control the outbreak by closing the schools. Indeed, the public is so convinced that closing the schools is the necessary step to be taken in controlling an outbreak, that, if this is done, it rests assured that vigorous methods of control are in force and is satisfied, even if nothing more active is undertaken.

If, however, the health officer declines to close the schools he is blamed no matter how active he may be in checking the outbreak in other ways, and tremendous pressure is put upon him to compel him to close them. This pressure comes chiefly from the parents, but often, I am sorry to say, from the practising physicians, and a man must have a very rigid backbone to withstand it.

The statute provides that when a disease dangerous to the public health occurs the board of health shall use all possible care to prevent the spreading of infection; that is, the duty of the board is directed towards preserving the health of the public rather than towards the individual.

One factor necessary in checking an outbreak quickly is a knowledge of the cases at the earliest possible moment, in order to eliminate possible foci of infection by removing and isolating infected or suspicious cases, and the whole matter resolves itself into the answer to the question whether the board can best do this when the schools are open and the children under supervision or when the schools are closed and the children scattered?

It seems to be almost a truism to say that the best work can be done under the first set of conditions.

Another point which I fear is often overlooked is that, other things being equal, the work of the board should be done with as little disturbance of normal conditions as is compatible with efficiency. In other words, if the outbreak can be checked as quickly and efficiently without closing the schools as by closing them, the former alternative should be adopted.

The arguments in favor of closing the schools seem to be based chiefly

upon tradition and public demand and not upon careful study of the manner in which infection is transmitted in and out of the schools.

In the old days before much attention was paid to medical inspection of the school children and when incorrect ideas of the method of transmission of infection were held, the schools seemed to be very active means of spreading infection, and, indeed, at first glance, it may seem as if the schools were responsible for an increase in the incidence of the commoner communicable diseases of childhood. There is undoubtedly a rise in the curve of incidence of any of these diseases shortly after the opening of the schools in the autumn, and the natural inference is that the opening of the schools is the cause of this rise, but a little thought and a more careful study of the curve will show that this is not the fact.

During the vacation the majority of children of school age are not under such careful supervision as they are when the schools are open,—many of them are away from home and there is a larger number of missed and unreported cases. As soon as the schools are opened and the medical inspection begins, these cases are discovered by the school physicians and there is a rise in the number of cases reported.

Dr. John D'Ewart, assistant medical officer to the Manchester (England) Education Committee, claims that this rise is caused by the detection of many missed cases just after the schools open, and is really a rise in the number reported, and not a rise in the actual number of cases existing.

He shows that in Manchester during seventeen years, from 1893 to 1909, there was a rise in the number of cases of scarlet fever reported, beginning in September shortly after the schools open, reaching its maximum in the second week in October, and falling rapidly from October to the end of the school year, with a slight rise in the second week in January.*

He also shows that, taking the age at which children were attacked, there is a rapid rise in the curve of incidence up to seven years of age, followed by a steady fall from that age onward.

Children do not begin to attend school regularly until six years of age, so that the rapid rise in the curve of incidence shown during no school or irregular school attendance is stopped and converted into a fall after one year of regular school attendance.

If the schools were responsible for an increase in the incidence we should expect a great rise after the children enter school, say between the fifth and seventh years, whereas the figures do not show this expected rise, the percentages being 13.84 from 1 to 3 years, 28.71 from 3 to 5 years, 31.48 from 5 to 7 years and 24.53 from 7 to 9 years.

Taking the cases reported during the first fourteen years of life, 54.86

*"The Medical Officer. London. Vol. VII, No. 9, p. 97ff.

per cent. occur during the first seven years and 45.13 during the second seven years.

In Newton, where the average age of entering the first grade is 6 years and 3 months the percentage of attack in scarlet fever during 20 years from 1893 to 1912 was as follows: 14.04 from 1 to 3 years, 25.56 from 3 to 5 years, 30.89 from 5 to 7 years and 27.80 from 7 to 9 years. For the first seven years of life the percentage of incidence was 52.01 and for the second seven years 47.98.

These figures seem to clear the schools from responsibility for any great increase in the rate of incidence of disease, for while the calculation is based upon scarlet fever alone it is equally true of diphtheria.

In two instances lately where the outbreaks were due to missed cases which were in the schools for some time before discovery, the first cases found were not children who sat near the infecting cases, nor were they in the same grade, but were those who were their playmates and companions out of school.

Thus, in an outbreak of scarlet fever due to a missed case, the first case reported was a child in another grade in the school, but living at the end of the same street with and a playmate of the infecting case; the second case was a child in another school, but living next door to the infecting case; the third, fourth and fifth cases, reported simultaneously, were a brother and sister of the infecting case and a playmate living across the street, none of them in the same grade. All of these cases, together with others, were traced to the infecting case, but of eleven cases due to this one, only two were in the same room at school.

More recently, in an outbreak of diphtheria, the cases were similarly infected, the majority being found among the children in other rooms than the one in which the infecting case sat, but all living near and playing with him out of school.

Of course no conclusions of any value can be drawn from so few instances; they are given for what they are worth in the hope that further observations by others may confirm or disprove them, but as far as they go they seem to show that infection is not contracted in the school room as frequently as is usually supposed.

If the schools are closed when an outbreak occurs, the children are turned loose from supervision; they mingle freely with one another in the streets, on playgrounds and in each other's houses. They are having an extra vacation and enjoying themselves thoroughly and are unwilling to admit that they feel ill, lest they be kept at home and prevented from having a good time. For this reason they will not say they feel ill until they are possibly well advanced and they may be active sources of infection for some time before it is discovered that they are ill.

In our experience in Newton, it has usually happened that cases among

children kept out of school by their parents from fear of infection during an outbreak are much further advanced and much more sick when found than are cases among children who have continued at school, and also that the outbreak has lasted longer among the former class than among the latter.

Dr. E. C. Levy, health officer of Richmond, Va., believes that during an outbreak of measles in 1910, the schools and Sunday schools were the chief means of spreading infection. In the outbreak of 1912–13, he tried the effect of closing the rooms in which a case appeared for five days, viz., from the ninth to the fourteenth day, after the detection of the first case. He thinks that this plan "would undoubtedly have lessened to some extent the spread of the disease" but it was soon apparent that such a course would result in the complete disorganization of the whole public school system.

It was, therefore, abandoned and whenever a case was discovered the teacher was instructed on what day to look for prodromal symptoms in others and that such cases should be immediately separated from the other children and examined by the school physician or nurse. In other words, after a careful trial, the closing of the schools was abandoned as impracticable.

If the schools are kept open and the children continue in the classrooms as usual, they are under strict observation and examined daily by the school physicians, suspicious and infected cases being sent home for observation or treatment.

In this way many children are sent home before they have had an opportunity to infect others, thus reducing the probability of spreading infection. Further than this, the attention of the parents is called to the fact that the child is feeling ill and he is brought under treatment earlier.

It seems, therefore, that keeping the schools open offers the best chance of safety for the scholars both collectively and individually.

Instead of closing the schools and allowing the children to be scattered and removed from supervision when an outbreak appears they should be kept open as usual and the children urged to attend. The school physician and nurse should be detailed to the school where the outbreak has appeared and instructed to examine every child daily, excluding such as appear ill or suspicious. This can be done with very little disturbance of the school work.

A note must be sent to the parent stating that the child seems, or is, ill and must be seen by the family physician.

Suspicious cases must be ordered to remain at home until further notice, and, if necessary, must be visited later in order to settle the diagnosis.

Absentees must be rounded up and examined in order to find out why they have been kept at home. If they are ill, they must be isolated, and, if well, urged to return to school.

Such a method of dealing with an outbreak may seem to entail a large amount of work and require a specialization, which the ordinary board of health cannot carry out, and it does entail more work than closing the schools and waiting for the outbreak to stop itself, but in reality it is not difficult.

In a large city the necessary force is at hand and ready to start work; in smaller cities the number of cases to be handled is small and will probably be confined to one school, and the school physician can be detailed to the affected school during the outbreak, leaving the other schools in his district to be covered by one of his colleagues.

Even if extra help should be required, a condition which will rarely occur, the extra expense incurred will be more than offset by the shortening of the duration of the outbreak and the lack of disturbance to the schools.

When the schools are closed certain expenses such as salaries, etc., continue without any return and there is also an added economic loss from the lessening of the time for instruction, so that the children in the affected school or schools are behind others in the same grade in the unaffected schools.

One practical difficulty which tends to lessen the value of keeping the schools open will be found in the fact that many children will be kept at home by their parents through ignorance of the facts or fear of infection.

This can be met by a frank explanation of the reasons governing the action of the board in keeping the schools open. In the writer's experience it has often happened that after a frank explanation of this sort to a disturbed parent the result has been that the enquirer has sent his children back to school the next day, being convinced that they were fully as safe there as when they were kept out.

In many Massachusetts cities the medical inspection of schools is under the control of the school committee and at first sight this would seem to complicate matters, but there is no real reason why it should.

As a rule the school committee is not at all anxious to have routine work of a school upset by closing, and is, therefore, very willing to keep it open and have the work continue. This being so it will require very little persuasion to induce the committee to keep the affected school open.

While somewhat beyond the scope of my subject I wish to say that in my opinion the medical inspection of schools is a very necessary part of the work of a board of health and should be under its control.

In conclusion, while it seems evident that keeping the schools open during an outbreak offers the best method of checking it quickly, it must not be thought that this alone is sufficient. There is plenty of other work to be done in looking for the cause of the outbreak, but the work in the schools counts for the most and is the most important.

DIRTY HANDS AND TYPHOID FEVER.

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Secretary of the Massachusetts State Board of Health.

Read before the Massachusetts Association of Boards of Health, December 11, 1913.

In the *Journal of the Royal Army Medical Corps* for June and July (1913) appears a most important article on the Causation and Prevention of Enteric Fever in Military Service, by Maj. S. L. Cummins, and the conclusion reached in this article, though written from a military standpoint, can, in most instances, be utilized equally well under the circumstances attending typhoid or enteric fever as it appears in civil life. I have selected a single phase of the subject as presented by Major Cummins, and that is the possible rôle of unclean hands in the spread of this disease. Major Cummins in his work made the following interesting series of experiments:

"The following technique was employed in all the experiments:

"The fingers were washed in a small quantity of sterile water in a sterile 'Petri' dish, or watch glass; the resulting dirty water was added, as a rule, to bile salt peptone water or else centrifugalized, and the deposit plated. The fingers, too, were passed over the surface of bile salt plates while still moist after washing. The media were then incubated and examined for *B. typhosus.*

"EXPERIMENT I—(July 26, 1909). Fingers of fecal carrier S. examined. Result: Negative.

"EXPERIMENT II—(November 2, 1909). Fingers of urinary carriers F. I. and S. examined (one hour after passing urine). Result: Carrier F. I., *many colonies of B. typhosus* both on 'direct' plates and from the bile salt peptone water. Carrier S., negative.

"EXPERIMENT III—(November 6, 1909). Two urinary and three fecal carriers were paraded without previous warning, and with no reference to the time since excreta had been voided. The fingers of all were examined as above. All were negative as regards *B. typhosus.* From fecal carrier L., however, a fair number of motile Gram-negative bacilli were isolated, giving the cultural reactions of *B. fæcalis alkaligenes.* They were, however, agglutinated completely by a 1 in 100 dilution of antityphoid serum, and partially in dilutions up to 1 in 400. It may be added that the strain of *B. typhosus* from Carrier L. was very resistant to agglutination, only reacting completely up to 1 in 200 of the same antityphoid serum. Unfortunately, the culture kept for further examination was thrown away inadvertently when changing stations, and we were unable to go more

completely into the nature of the interesting organism isolated from the fingers of Carrier L.

"The series of experiments quoted serves to prove that *B. typhosus* itself, as well as other fecal organisms, can be isolated from the fingers of 'carriers,' a fact of great importance in connection with the contamination of food supplies. The following experiments show the effects of washing and removing the bacilli from infected fingers:

"EXPERIMENT IV—(September 26, 1912). To ascertain whether a finger infected with urine is easily sterilized. Dipped the tip of the right index finger in the urine of typhoid carrier A. (Proved to contain upwards of 3,000,000,000 per c.c.) (a) Rinsed in lysol solution (approximately 2 per cent.). (b) Then held the finger under the tap, rinsing first in cold, then in very hot water (temperature not recorded). (c) Washed very carefully in about 0.5 c.c. of sterile water in a watch glass, and plated the whole of the water used for this purpose. Result: Three hundred and thirteen colonies of *B. typhosus* on the plate. (d) After the washing in sterile water mentioned under (c), the tip of the finger was thoroughly soaked in absolute alcohol, allowed to dry, and the washing in sterile water repeated. The 'washings' were again 'plated.' Result: Four colonies of *B. typhosus*.

"EXPERIMENT V—(October 3, 1912). Contaminated the tip of left second finger with urine from Carrier A. (a) Allowed the finger to dry; (b) washed very thoroughly with soap and water under a running tap *Dried thoroughly with a cloth.* 'Washed' thoroughly with 0.5 c.c. of sterile water in a watch glass and plated the 'washings.' Result: No *B. typhosus* isolated. (c) Finally dipped the finger in lysol solution (2 per cent.), scrubbed, dried with a cloth, 'washed' as before and plated the 'washings. Result: No *B. typhosus*.

"The first experiment shows that it may be very difficult to free a finger from contamination by *B. typhosus*. The second attempt was successful, possibly owing to the fact that the fingers were thoroughly dried with a cloth, the mechanical friction apparently helping to remove the bacteria. Even if this were the case, it only means that the cloth became infected, and the danger of contaminated fingers remains obvious."

In this connection, I will recall to your attention some experiments made by Mr. Henry N. Jones, bacteriologist of the State Board of Health, who has found *B. coli* on three out of twelve towels taken from a number of toilet rooms accessible to a considerable number of persons. Mr. Jones summarizes his results as follows: "A considerable portion of public roller towels become contaminated with human feces. An unknown number of human 'carriers' have typhoid bacilli in their feces. How many cases of typhoid fever are contracted through contact with soiled roller towels?"

Now, in 1913 (year ending December 1), 2,363 typhoid fever cases were

reported to the State Board of Health of Massachusetts. Inasmuch as it is estimated that 4 per cent. of typhoid fever patients become chronic carriers, it is evident that approximately ninety-five "carriers" were added in 1913 to those previously in existence. Moreover, it is stated that women exceed men as chronic carriers of typhoid infection in a proportion of five to one, a most significant fact when it is considered that women, far more than men, are concerned with the handling of our food supplies. Under the circumstances, the wonder would seem to be that we do not have a much larger amount of typhoid fever. If a single drop of urine can contain 3,000,000,000 typhoid bacilli, what can we think about the waiter's thumb which gets into our soup and the none-too-clean fingers of the farmer who milks the cows?

Now as regards typhoid carriers, there is no doubt, in my mind, that the urinary carrier is far more dangerous than the fecal carrier, for urinary infection is practically always constant, whereas fecal infection oftentimes is very markedly intermittent, and in this connection it is important to point out, as shown by Major Cummins, that the carrier condition may be much aggravated by a number of different factors, for instance, under conditions of rest and quiet, the bacilli in both feces and urine may drop to very moderate numbers. In the process, however, of extreme muscular work, such as is seen in a military campaign, the bacilli increase very markedly in number. Furthermore, it has been noted that treatment of typhoid carriers with specific typhoid vaccine increases temporarily to a great extent the number of bacilli excreted.

Another interesting feature pointed out by Major Cummins is the following, that severe diarrhœa will often bring to light typhoid bacilli in the feces of a carrier when they had been absent previously for long periods of time. Major Cummins explains this increase as caused by the rapid passage through the intestinal tract of the typhoid bacilli from the region of the gall bladder to the rectum. Because of this rapid passage, the typhoid bacilli escape a strong inhibitory action exerted ordinarily by the *B. coli communis*. Indeed, another experiment by Major Cummins shows apparently that *B. coli* has this strong antagonistic action on the typhoid bacillus. It was found, for instance, that the growth of the typhoid bacillus in unsterilized milk ceases in a short time because, apparently, of the presence in the milk of *B. coli*, whereas in sterilized milk the typhoid bacillus increases almost without cessation. This feature, of course, has a very important bearing upon the handling of pasteurized milk.

What can we do to eliminate this danger which we run constantly of typhoid infection through the uncleanly habits of typhoid carriers? As far as fecal carriers are concerned, all efforts at the present time have failed to discover any method of cure. Furthermore, urinary carriers, especially of the subacute and chronic type, are very slightly susceptible to curative

treatment. A few will yield to the administration of hexamethylenamine. I believe, however, that this drug used from a preventive standpoint, may be of great importance. I have recommended for a number of years that all cases of typhoid fever be given hexamethylenamine in doses of five to ten grains each, three times a day, throughout the course of the disease, and, with such treatment, I believe that the development of the carrier condition, as far as the urinary tract is concerned, may be prevented. I shall never forget the theatrical effect produced by this drug upon the infected urine, as observed during the acute course of the disease. A urine absolutely clouded with bacilli would become oftentimes perfectly clear within twenty-four hours. This, as I have said, is the favorable time for the exhibition of this drug, when the condition is simply that of bacteriuria and before any marked pathological changes have taken place in the mucous membrane of the urinary tract. By active efforts, then, in the direction thus indicated, I have no doubt that the number of urinary carriers in any community can be very distinctly cut down, and this reduction in the number of carriers can not fail to be of the greatest importance as regards the incidence of the disease.

What shall the health officer do when these chronic carriers have been discovered and when it has been demonstrated that no therapeutic measures remove the dangerous conditions? To be logical, typhoid carriers, be they of the fecal or urinary type, should be kept under the supervision and control of health officers as long as their dangerous properties are known to persist, but a period of quarantine which might necessitate individual restraint for a period covering forty or fifty years, is, of course, not to be thought of. In our pamphlet concerning the control of typhoid fever, the State Board of Health has been accustomed to recommend that no typhoid convalescent be discharged from observation "until two consecutive negative examinations have been made of the stools and urine. If the patient's business brings him in contact with food supplies, four consecutive negative examinations of the stools and urine should be required. In case a person is found to be, in spite of all treatment, a chronic carrier of typhoid bacilli, he should be kept under competent supervision by the local board of health; he should not be allowed to engage in occupations requiring the handling of foodstuffs and, in case he moves to another neighborhood, the local health authorities of that neighborhood should be notified at once."

It has been pointed out that to a certain extent, at least, the requirements just stated can be of comparatively little avail, because fecal carriers, being highly intermittent as regards the excretion of typhoid bacilli, can by no means be regarded as without danger, even in the presence of several negative cultures. It has been proposed, therefore, that such examinations be not required and that *every* typhoid convalescent be strongly impressed with the possible dangers he may inflict on others in his surroundings.

While I should be willing to accede to a certain extent to the arguments advanced above, at least as far as the fecal carriers are concerned, I believe that the examination of urine cannot, under any conditions, be given up. The urinary carrier, representing as he does a maximum of potential infection, and, moreover, infection which is likely to be constant for months or years, must without doubt become subject to a supervision infinitely more exacting than that necessary for a fecal carrier. I would, therefore, still require the examination of stools and urines of the convalescent, recognizing the fact that a negative report from the urine is of the greatest possible value, also recognizing, however, that a negative result from the stools is of practically no value.

Finally, as far as unclean hands are concerned, our course, as regards typhoid infection would seem to resolve itself into the two following propositions: first, that inasmuch as no person can be absolutely certain that he is not a typhoid carrier (for, of course, it is well known that a healthy human being, and especially those attendant upon typhoid patients, may become a temporary typhoid carrier, even though he has not suffered from the disease itself) every one should, as far as possible, wash his hands with scrupulous care after any possible contamination with feces or urine, and, secondly, that no one should think of handling food, either for his own use, or for others, without carefully washing his hands.

NUISANCES UNDER THE LAW.

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Stenographic Report of an Address before the Massachusetts Association of Boards of Health, December 11, 1913.

You have assigned to me a very wide subject, Nuisances under the Law. That subject includes a great deal more than the mere matter of public health. You are quite right in asking me to speak of the subject at large. That which has to do with public health peculiarly is understood by you much better than by me; and the reason for my speaking about the general subject of nuisances is merely that I may emphasize the relation of your branch of it to the whole matter.

There is one thing which will be demonstrated by what I say, namely, that the word "nuisance" has a somewhat indefinite meaning. Hence, I prefer not to deal with it in general language but rather to discuss concrete instances. That is the reason I have brought with me a few volumes of law reports. These reports contain examples of several nuisances and of the several sorts of procedure with which the courts handled them.

What I mean to do is simply to run through four simple typical cases. I dare say you are acquainted with all of them; but, nevertheless, let us run through them that we may ascertain in a very concrete fashion what a nuisance is and what the law does about it.

Let me begin with Commonwealth *v.* Upton, 6 Gray 473, away back in 1856. There a man had a slaughter house in Fitchburg. He had had it there for at least twenty years. He had had it there when the very neighborhood was a perfectly appropriate neighborhood for a slaughter house; but time had passed, streets had been built near his slaughter house, people had gone to live near it; and to his surprise at last he found himself indicted for having this slaughter house; and the indictment held, too. How horrified that man must have been! A slaughter house was a necessary thing, and very possibly it was conducted by him as well as it could be conducted. As far as most people know, such a thing is not peculiarly bad for the health, although it is probably disagreeable to smell, and possibly disagreeable to hear. Now, at last, this man was indicted. This man who certainly once was innocent, and who had been conducting this useful business for years and years, was now held to be guilty of a crime. Thus, we find from this little case that a man may be actually indicted and punished for a useful thing which he has done for a long, long time, which useful thing has, by and by, as time and place have changed, come to be what we

call for short, a nuisance—that is to say, it has become really an unbearable annoyance to the public.

The next case I will take is not as old as that. It is the case of Davis *v.* Sawyer, 133 Mass. 289, decided in 1882. There a gentleman had a factory and adjacent to his factory a tower and upon the tower a bell that weighed 2,000 pounds. With this bell he summoned his employees. He awakened them in the morning at 5 o'clock by ringing sometimes as many as 90 strokes, and between 6 and 6.30 he rang the bell several times again, and he kept up that habit more or less throughout the whole day. Now, there was another man in the neighborhood who lived in an ordinary residence 1,000 feet away, and this other man and the people in his home were awakened most disagreeably at the hour of 5 in the morning. Most of the people in the neighborhood, it would seem, really needed that warning at 5 o'clock. In a way they enjoyed it: that is to say, it was part of their mode of making their living, part of their mode of reaching at the right time the place where they were to be useful and get their wages in the long run; yet, against the ringing of this bell a court of chancery granted an injunction. That, then, is the second remedy. Here, too, we had a useful business prosecuted in a way, which, without doubt, at some time and in some place would be appropriate, or even laudable; and yet society intervened through the court which granted an injunction. That is the second of my little cases.

In each of the two cases thus far presented there was no statute law. The rule administered was simply good old-fashioned law as it had grown up at the hands of the courts through centuries.

The next case is that of Rideout *v.* Knox, 148 Mass. 368, decided in 1889. Here a gentleman built a high spite-fence. The public was in no way injured by the fence; but the neighbor against whom he built the fence was, of course, injured. There was and still is a statute to the effect that, if a person builds a fence more than six feet high for the mere purpose of annoying someone else, then his fence is a private nuisance. Now, the person who was injured in this instance simply brought an action for damages. He did not try for an injunction. He did not try for an indictment; and, indeed, he could not have got that, because this was not a public nuisance. He waited, and then he brought his action for damages. He recovered his damages. That is the third remedy, then, and a third sort of nuisance—to use the word that covers all these things and a great number of others.

Then we come to the last case which I mean to cite, and that is the case of Stone *v.* Heath, 179 Mass. 385, decided in 1901. Here the owner of property had upon his land a mass of decaying vegetable matter, which threatened a public water supply. By and by the board of health began to abate that nuisance. Here the shoe was, so to speak, on the other foot. The man who went to court this time was the man who was perpetrating the nuisance. He went to court and asked for an injunction against the

board of health. He did not succeed in his suit for an injunction, for he was told that under a statute the board of health had received power to abate such decaying vegetable matter as was really causing a detriment to the neighborhood. That case, then, calls attention to the fourth remedy, that is to say the remedy of abating a nuisance without the intervention of the court at all.

These last two cases are cases under statutes. In one instance the nuisance was made a nuisance by statute. In the other instance the nuisance was not made one by statute, for decaying vegetable matter in such a place had been deemed a nuisance always, and, besides, the power of abatement was not created by statute; but what was created by statute was the special privilege of the board of health.

We have now had instances of four remedies— to run over them again: First, the remedy by indictment, then the remedy by injunction, then the remedy by action for damages, and then, lastly, the remedy by abatement. These four remedies are given by society with reference to this somewhat hazy sort of a wrong, the nuisance.

And what a hazy sort of a wrong it is. The word "nuisance" means absolutely nothing but annoyance. How can you define "annoyance"?

What do you suppose those four wrong-doers in those four cases said? You know what they said quite as well as I do. The first man said, "Why, here is my slaughter house—*my* slaughter house; and society is interfering with my slaughter house." And the next man said, "Here is my bell which I enjoy ringing; and society is interfering with my bell." And the next man said, "Here is my spite-fence, and great satisfaction do I get out of it; and society is now interfering with it." And the last man said, I suppose, in one form or another, "Why, here are my dear, decaying vegetables; and society is interfering with them." Thus these four men, a sort of male quartet, sang four slightly different parts. And then the male quartet came out in unison and said, "You are interfering with the right of property, and that is a serious thing; and you are interfering with personal liberty, and that is still more serious." And when the male quartet concluded with their unison, society stood up and sang in chorus, "Yes, yes, we are interfering with the right of property, and that is a serious thing; and we are interfering with personal liberty, and that is still more serious. Yet the right of property and the right of liberty, odd as it may seem, were created by society for the purposes of society, are recognized and enforced by society for the purpose of the general welfare, and are restricted now and always in the light of that same purpose which caused the creation and the recognition of the right of property and the right of personal liberty." And then that male quartet would rise and say, "But how do you define this right of society to limit property and personal liberty?" And then society, speaking through the law,—for the law is

no more nor less than the voice of society; if you do not like the law, you must complain to society and not to the board of health—society says, in something like a chorus, "Why, there is a general principle underlying this restriction. It has two features. In the first place, society cannot complain unless a substantial damage is being done; and, in the second place, society cannot complain if the business is being carried on in a proper place and in a reasonable way." Then my male quartet will say, "What indefinite language this is! What is substantial damage? How do you draw the line as to the substantialness of the damage? Besides, what is a proper way for the carrying on of business? Where do you draw the line there?" And society will have to say, "We cannot draw a definite line for the present time, and still less can we draw a definite line for the future." And then my male quartet will say, "Oh, think of the danger and the injustice to us." Then society will say, "Gentlemen, we have hedged you about with the best protection that we know. It will lie finally in the opinion of twelve men of your neighborhood who have no peculiar interest in the matter; and even if there be not a case for a jury, for the reason that the case may be an injunction case in a court of chancery, even then you will have the protection of having these puzzling problems as to damage and reasonableness passed upon by a judge who is not interested in the matter, who is the mouthpiece, the responsible mouthpiece of the people of that same neighborhood at that same time. What more can society do for you four people protesting against these limitations that are placed upon your rights of liberty and of property? The limitations are not new in principle, although they may be new in application to your case. The procedure is not new. The machinery of the judge and jury, and also of the judge without a jury, must be conceded to have existed for centuries, and must be conceded to have taken care of matters even more important than these."

Sometimes it is worth while to stop for a moment and to think of the larger aspects of the homely work which we do day by day. You and I know, gentlemen, the disagreeable features of the work done by health officers. And yet, you and I know that the work is part of the necessary protection of society in its highest interests—its health and its morality—against the thoughtlessness, the unskilfulness and the selfishness of the individual. The work must be done. And society has provided sensible rules and has done its best to prevent them from being used oppressively.

But now my quartet will again complain, this time calling names; for my quartet must be admitted to be in the last ditch. My quartet will say, "Oh, this is socialism." No, it is not, and no good can come from calling it so, for if this be socialism, then socialism is as old as society and as old as those words of society which we call the law of nuisance.

This law of nuisance, by the way, is only one of at least four instances in which society has created and retained and developed powers which

enable the world, as time passes, to be a good fit. Men must live, and must live here and now, and must in the next generation live here, too. There must be rules to enable them to live comfortably and morally. There must be machinery whereby from time to time the need of today is met.

Now, there are at least four ways—and, indeed, there are more—in which the law, that is, society, without any revolution at all, does so limit property and liberty as to achieve the necessary welfare of the time. One of them is taxation, which takes from the citizen more and more as society needs more and more for the development of new institutions. Another is eminent domain, by which society, with compensation, to be sure, takes from the owner property which is dear to him and takes it simply because society needs it for higher purposes of its own. Another is the limiting of the callings affected with a public use; for society has always said, and today is still more emphatically saying, that there are some callings which are either so dangerous or so useful that society has the right and duty of regulating them. The law of nuisance simply takes its place as a fourth member of the small but powerful group of governmental powers absolutely essential for the development of man.

But my male quartet would like to ask one further question; and that is, "Where will this thing stop?" And I trust that the chorus of society will be truthful in this matter and will say, "We do not know."

And now, my friends, just as our predecessors have shown themselves worthy of being trusted with those four great powers, just as we of this generation have not gone to an unreasonable limit, so we may well believe that our successors will also bear in mind the same principles—principles which we did not create, but which we inherit—and that our successors will enforce wisely, with occasional mistakes, doubtless, those same doctrines. If we appreciate our own shortcomings, we think—indeed we know—that our successors will be as wise as we and that they will not go too far, and that they too will apply fairly to the needs of their place and time all the humanizing and civilizing powers which have existed so long, and, more specifically, the essential doctrines of this law of nuisance—the doctrines that a private individual may not use his property or his liberty in such a way as to do any substantial damage to his neighbors or to the whole community and that he must conduct his business, however useful it may be, in a way that is reasonable.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.

A special meeting of the Massachusetts Association of Boards of Health was held at the Brunswick Hotel, Thursday, December 11, 1913, with President Samuel H. Durgin in the Chair.

The following gentlemen were elected to membership in the Association: Dr. Amzi Bedell Shoemaker, Board of Health, North Attleboro, Mass.; Mr. Francis J. O'Hare, Board of Health, Lowell, Mass.; Dr. E. A. Perrin, Board of Health, Stoughton, Mass.; Mr. John J. Rogers, Board of Health, Stoughton, Mass.

The following papers were then read:

"Nuisances," by Samuel H. Durgin, M. D., Boston, Mass.

"Nuisances under the Law," by Eugene Wambaugh, LL. D., Cambridge, Mass.

"Shall We Close Schools during Epidemics," by Francis George Curtis, M. D., West Newton, Mass.

"Dirty Hands and Typhoid Fever," by Mark W. Richardson, M. D., secretary of the Massachusetts State Board of Health.

It was moved that the chairman appoint a committee of three to recommend a set of regulations concerning absence from school caused by infectious diseases and the time for which those who have been exposed at home or otherwise shall be under observation.

The motion was seconded and carried.

The Chair announced the appointment of the following committees: Committee of Nominations—Dr. Mark W. Richardson, Dr. L. A. Wood, Mr. Wm. L. Underwood, Mr. R. L. Newcomb, Dr. F. M. Kennedy, Dr. Henry J. Barnes, and Doctor Tobin. Committee of Isolation of Contagious Diseases—Dr. W. J. Gallivan, Professor Howe and Dr. Francis George Curtis.

There being no further business the meeting then adjourned.

BOOK REVIEWS.

Bovine Tuberculosis and its Control. *By Veranus Alva Moore, B. S., M. D., V. M. D., Professor of Comparative Pathology, Bacteriology, and Meat Inspection, New York State Veterinary College at Cornell University, and Director of the College. Price $2. 134 pages. 30 full-page illustrations. Carpenter & Co., Ithaca, N. Y., 1913.*

Professor Moore, in this book addresses those that find it necessary to be informed as to the essentials of his subject rather than those who are expert in this direction.

The opening chapter is a brief history of tuberculosis in cattle; it is followed by a statement of the economic and sanitary importance of the disease. In Chapter 3, bacterium tuberculosis is described and there are some remarks on the difference between the human and the bovine germ and on acid fast organisms. The nature of tuberculosis is explained and the tissue changes wrought by the disease are described in Chapter 4. This is followed by a chapter on the symptoms of tuberculosis in cattle. Methods of dissemination are discussed in Chapter 6, which is one of the longest in the book and contains valuable information. Diagnosis by microscopic examination, animal inoculation, and tuberculin are briefly touched on in Chapter 7. Chapter 8, on tuberculin and its use, is excellent. Detecting tuberculin in cattle by physical examination is the subject of Chapter 9, and an account of the attempts to immunize cattle against tuberculosis is given.

Then the control of tuberculosis is discussed. The methods adopted in the United States, Denmark, England, Germany and Holland are set forth, and the Bang, the Manchester and the Ostertag methods of freeing herds from tuberculosis are explained. It is pointed out that in all the countries mentioned, save the United States, dairymen are permitted to sell milk, except for infants, from tuberculin reacting cows that do not show recognizable physical symptoms of tuberculosis; and the question is raised whether this does not encourage dairymen to rid their herds of the disease more than do the methods in vogue in our own country. The chapter closes with some remarks on disinfectants, and on the necessity of a state meat inspection in connection with the control of tuberculosis.

In the appendix is given the valuable report of the International Commission on the Control of Bovine Tuberculosis. There are twenty-nine full-page half tones that, for the most part, depict diseased organs, and there is a bibliography of four pages.

Horatio N. Parker.

Disease in Milk—The Remedy—Pasteurization. *By Lena Guther Straus. 221 pages. Paper cover. New York, 1913.*

In this brochure Mrs. Straus gives the public an account of her husband's efforts to reduce sickness and death amongst infants by making pasteurized milk available to the poor. This laudable undertaking was beset with difficulties, for it not only required much money, but entailed the exercise of tact and patience in satisfactorily answering criticism of a new food to the end that it might be widely used and thereby accomplish the desired result. Everyone interested in child welfare work and in the solution of the milk problem knows in a general way of the work of Nathan Straus, but few are aware that his time and means were as generously employed as this book shows.

In 1892 Straus became convinced that impure milk was responsible for the deaths of many babies; so in 1893 he began the distribution of pasteurized milk, putting out 34,400 bottles during the year. By 1906 the number had increased to 3,140,252; in fact, the gospel of pasteurization spread steadily through Straus' charities. At one time or another he supplied pasteurizing plants in Brooklyn, the infants' asylum on Randall

Island, Philadelphia, Chicago, Washington, Wilkesbarre, Toronto, Dublin, Karlsruhe, Manila and elsewhere.

Besides an account of these things, there are to be found in Mrs. Straus' publication a description of the way milk is pasteurized at the Nathan Straus Pasteurized Milk Laboratories in New York, and formulas that are used in modifying milk there, together with many letters and addresses of Mr. Straus on the relation of milk to the public health. A number of illustrations enliven the book which should encourage others to undertake similar work. *Horatio N. Parker.*

Eugenics in the United States. *(Die Rassenhygiene in den Vereinigten Staaten.) By Geza von Hoffmann, Austrian vice-consul. 150 pages with classified bibliography of 85 pages in addition. Munich, J. F. Lehmanns, 1913. $1.50.*

This is one of the most interesting books on eugenics that I have seen, and is a monument to thoroughness. Almost the only fault one can find with it is that it was not written in English. There certainly should be sufficient demand for a translation. The American eugenist, who knows how often "the eugenic marriage" is ridiculed in our newspapers, will doubtless feel that Herr von Hoffmann sees eugenics in America through rose-colored spectacles; but it is well to look at the bright side as well, as the dark, and it is always broadening to see ourselves as others see us.

The contents of this encyclopedic work are as follows: I, Elements of Eugenics. II, Diffusion of Eugenic Ideas in the United States. III, The Regulation of Marriage in the Eugenic Sense. IV, The Sterilization of the Inferior. V, Selection of Immigrants. Appendix I, The Wording of the Michigan Marriage Law. Appendix II, Wording of the Sterilization Laws. Appendix III, Wording of the Immigration Law. Appendix IV, Bibliography. General index.

The author makes the surprising statement in his introduction that "the man who in America is considered feeble-minded, undesirable, and fit for an institution, is regarded by us as only a stupid fellow," and accordingly one does not find in European institutions the same class of feeble-minded persons that is confined in the American. From my short experience of three years in Germany I think the standard of normal mentality *is* higher in America than in Germany. Von Hoffmann expresses his faith in the future of eugenics in America in the optimistic words: "Galton's dream that eugenics will become the religion of the future is finding realization in America." May his prophecy come true!

The chapter following gives a most encouraging summary of modern eugenic activities in America, beginning with Wilson's presidential address and ending with a full statement of the origin and aims of *The Eugenics Record Office at Cold Spring Harbor, Long Island, New York*, which, together with the Station for Experimental Evolution of the Carnegie Institute, may be considered the headquarters of scientific work in eugenics for the United States. For a list of their bulletins, memoirs, and family record blanks address the director, Prof. C. B. Davenport.

The two chapters on the regulation of marriage and the sterilization of the inferior consider all the advantages and objections so thoroughly and impartially, citing numerous authorities, that they seem to be the last word on the subject and deserve the widest possible reading. The reader is left to draw his own conclusions.

William L. Holt, M. D.

Manual of Bacteriology. *By Robert Muir, M. D., Sc. D., F. R. S., Professor of Pathology, University of Glasgow; and James Ritchie, M. A., M. D., F. R. C. P. (Ed.), Superintendent of the Royal College of Physicians' Laboratory, Edinburgh, formerly Professor of Pathology in the University of Oxford. Sixth Edition. 192 illustrations and 6 colored plates. 736 pages. $3.25. Macmillan Co., 66 Fifth Avenue, New York, 1913.*

The first addition of this well-known Manual of Bacteriology appeared sixteen years ago. It has deservedly reached its sixth edition and in its present form represents a re-

vision of the entire work. Notable additions are a section on the bacteriology of milk in Chapter V, and a well written chapter on the pathogenic fungi, to which Professor Percy Groom of the Imperial College of Science, London, has contributed. The authors have increased the number of well chosen photographs in the text, but advantage has not been taken of the new edition to replace a few of the rather poor line drawings of bacteriological apparatus in the chapter devoted to general bacteriological methods. It is difficult to make any criticisms of this excellent manual, which will continue to be indispensable to both physician and laboratory worker.

M. F. Boyd, M. D.

Marriage and Genetics. *Laws of Human Breeding and Applied Eugenics. By Charles A. L. Reed, M. D., F. C. S. 182 pages. Price, including postage, $1. The Galton Press, Publishers, Cincinnati, Ohio.*

The aim of this book, we read in author's preface, is to expound in popular terms the laws of human breeding and to indicate the manner of their application, first, for race improvement, and second, for the protection of person and progeny from the sequels of "social disease."

Division I, sixty pages, is devoted to what the author terms the decalogue of human breeding. This consists of a restatement of some of the great generalizations in the fields of heredity and evolution associated with the names of Weissman, Hæckel, Galton, Mendel, Spencer, and Darwin, together with a statement of the inverse relation of growth and reproductive power, and two or three "laws" for which no reference is given. In Division II, thirty pages, we find a discussion of the "social diseases." In the final six pages of Division III, a possible *modus operandi* of a prenuptial eugenic examination is suggested. The remainder of the book, fifty-five pages, save the conclusion, contains a list of "genetic factors," including first, unit characters which have been demonstrated to be of Mendelian significance in man, and second, malformations and diseases which may interfere with procreation or figure in inheritance. Examples of the alphabetically arranged factors are alcoholism, literary, aptitude, mumps, music, myopia, temperament, tuberculosis, tumors.

The book is evidently written with sincere enthusiasm and is an interesting example of the widespread modern tendency towards untechnical presentation of scientific subjects, particularly the science of inheritance.

However, it seems to the reviewer that two serious criticisms may be justly held with regard to Doctor Reed's book and many others of its class. The first is in regard to the possibility, in so limited a space, of presenting the greater part of the subject of inheritance without likelihood of many misinterpretations on the part of non-critical laymen. Furthermore, our confidence is not increased by certain apparent lapses, such as the confusion of the fact of the continuity of life through cell lineage (first clearly appreciated by Virchow) with Weissman's theory of the continuity of the germ plasm, two entirely different matters. Moreover, the theory of the continuity of the germ plasm seems to be regarded as a fact universally demonstrated. Again, the author says, "The laws governing the determination of sex are unknown." Again we read of "lowly but important organisms, a million of which, ranged in a single file, measure less than an inch." Again, the gonococcus is spoken of as "a minute organism consisting of two spherical halves."

The second criticism refers to the failure of the author to point clearly to the present embryonic state of eugenics. In only a few inconspicuous separate paragraphs is the limited amount of data available for eugenic generalizations mentioned. There is a great abundance of dogmatic statement of "laws" of nature with various implications as to their immutability, but little reference to their possible debatability. Consequently, one must ask himself if the lay reader might not either be easily misled by the apparent straightness and obviousness of the road of race culture, bounded by so many fences and

guide posts, or mystified at the small amount of progress that, when all is said, seems actually to be taking place thereon.

This leads to the general question of the wisdom of premature popularization—of rushing in where Pearson fears to tread.

The portions of the book dealing with strictly medical subjects are presumably sound—are certainly interesting, though brief. The reviewer would like to add his objection to that of others against calling gonorrhœa and syphilis "social diseases."

E. C. Howe, Department of Hygiene, Wellesley College.

Mouth and Mouth Sepsis. *By John S. Marshall, M. D. Philadelphia, Lippincott. 1912. 8vo., 262 pages.*

As indicated in the title, this book treats, first, of the proper care of the teeth under the varying circumstances of temporary and permanent dentition, illness, etc.; and second, of the many diseases, near or remote from the seat of infection, originating in or affected by oral sepsis. The two subjects are treated at about equal length.

Everyone must welcome any forcible argument for increased attention to oral hygiene. School teachers and sanitarians, for whom, among others, the author says the book is intended, should read here with interest and profit. As a member of both classes, however, the reviewer must take exception to certain parts and methods of the argument. Guarded, balanced statement, possibly even understatement, adds far more to the force of an argument than alarmism and careless sanitary science. It could be wished, for example, in view of the accepted facts of the amount of air-borne infection, that less lurid pictures had been painted of the "poisoning of the air. . . by every expiration. . . with the organisms of pulmonary tuberculosis, bronchitis, la grippe, and numerous others." To ptomaines is ascribed, in several instances, the responsibility for intestinal disease—a loose practice which doubtless rests on some limited basis of fact, but which should be discontinued and discountenanced till that basis is clearly understood. The positive, unqualified statement that opsonic index is the measure of vital resistance would seem to be taking much for granted. The reviewer, from the standpoint of a teacher, would rather see the statistics proving that dental disease, unlike almost all others, is on the increase, than believe the bare statement to that effect; and he cannot rest satisfied with the inadequate reference to the relation of dental disease to heredity. The phrase "mycotic disease" is used where *microbic* must be meant. The advocacy of sterilization of the tooth brush after using in the home is of questionable expediency from the propagandist's standpoint, and of doubtful necessity from that of the bacteriologist. The constantly recurring use of special terms in pairs—their scientific and common forms always coupled—is of doubtful usefulness in a book of this kind, since neither expert not layman needs the technical synonym. It increases the length of the book, and does not always lead to clarity, *e. g.*, "pyorrhœaalveolaris—Rigg's disease." It easily leads to actual redundancy, as "the food is ground, triturated" and "indigent, poor."

E. C. Howe, Department of Hygiene, Wellesley College.

Report of the Sex Education Section of the Fourth International Congress on School Hygiene and of the International Meeting of the Federation at Buffalo, New York, August 27 and 29, 1913. *Issued by The American Federation for Sex Hygiene. Tilden Building, 105 West 40th Street, New York City, 1913.*

"Order out of chaos" is the keynote of a little book, published by the American Federation for Sex Hygiene, containing the proceedings of the Sex Education Sessions of the Fourth International Congress on Sex Hygiene and of the Annual Meeting of the Federation, held at Buffalo, N. Y., August 27 and 29, 1913. One feels, indeed, after such stim-

ulating papers and the keen, searching discussions which followed, that the mists of over-enthusiasm and misdirected energy are fast disappearing before a calmer and more judicious appreciation of the far-reaching complexity of the whole problem. As Mr. Birtwell, a recent officer in the federation, remarked: "The best thing for this cause the country over is a very fundamental recognition of the fact that we are groping; we are only on the threshold of the subject, and we had better beware of resolutions."

Special emphasis was laid throughout the meeting on the questions concerning school instruction. In what grades, at what ages, by whom, and how were the questions which received the greatest discussion. These, and many others, in drawing out the judgments and experience of those who have actually been teaching sex hygiene in the schools, are of material aid in clarifying one's own opinions. For a subject requiring such careful analysis, and in which the temptation to decide everything at once is so great, the words of Dr. Ira S. Wile are very encouraging: "We are not going to decide this year or next, and if we begin to assert dogmatically that this is the time, and this is the age, and this is the place, we are going to wreck the whole movement before it advances any further."

Among the seven papers contributed are: Public Opinion and Sex Hygiene, by Dr. Charles W. Eliot; Points of Attack in Sex Education, by Dr. T. M. Balliet; Education *v.* Punishment as a Remedy for Social Evils, by Dr. Hugh Cabot; and Some Methods of Teaching Sex Hygiene, by Miss Laura B. Garrett.

The publication of the proceedings of these meetings in book form must be warmly welcomed as offering the public a better opportunity of learning how earnestly the American Federation of Sex Hygiene is attacking its problems, as in the past its proceedings have appeared only in the closed and limited circulation of its quarterly magazine.

P. S. Platt.

HEALTH DEPARTMENT REPORTS AND NOTES.

REPORTS.

Cambridge, Massachusetts.

The annual report of the Board of Health of Cambridge for the year 1912 presents in a brief, but well chosen form, the work which has been accomplished. Although geographically a part of Boston, Cambridge is incorporated separately and has a population of about 108,000. The total number of deaths, excluding stillbirths and deaths of non-residents, but including deaths of residents which occurred outside the city, is 1,519, making a corrected death-rate of 14.05, the lowest on record. Two hundred ninety-four deaths, or about one-fifth of the total number, occurred under the age of one year, but since there is no report of births given, the rate per thousand births is not available. The expenses of the board other than the cost of maintenance of hospitals is about twenty-eight cents per capita population, but this does not include scavenging, which is carried on by another department.

The rate of incidence of contagious disease is higher than normal, due to an epidemic of measles which brought the total number of cases of this disease for the year up to 1,015. Fifty-five cases of typhoid were reported during the year, the lowest number on record. Diphtheria and scarlet fever cases are also well below the average number for the ten years recorded.

The report of the bacteriological laboratory shows a total of 2,523 specimens examined, all but nine being for either diphtheria, typhoid, or tuberculosis. The inspector of milk and vinegar reports the bacteriological or chemical examination of 656 samples. Of 606 samples of milk examined 50 per cent. showed more than 500,000 bacteria per cubic centimeter, high counts being largely due to improper refrigeration and careless handling in the shops rather than to bad conditions of production. During three months of the summer five stations were made by the board for the purpose of dispensing modified milk for infants.

School inspection is being carried on with good results, although the small number of physicians and nurses has been a handicap. A Fresh Air School for special cases of anemia, and so forth, has also proved of great value.

Other reports in the book are of the diphtheria hospital, the tuberculosis hospital, and the inspector of provisions. The recommendations of the board in regard to improvements needed include the employment of additional school nurses, additions to the present system of public comfort stations, legislation for better control of the milk supply, and the extension of the system for supplying modified milk for infants. It is possible that the sanitary survey of the city which was launched during 1913 will result in pointing out other possibilities for improvement.

Edmonton, Alberta.

The conditions existing in Edmonton make it extremely difficult to carry on public health work which will show definite returns. Situated in a relatively new country and in such a position that it is a focus for travel and has a large floating population during the summer months, there is bound to be a high contagious disease rate due to imported cases. Added to this, a considerable portion of the population is foreign, and these are mainly ignorant of the most elementary points of sanitation; so not only is it a favorable ground for the spread for disease, but also the reporting and isolation of cases becomes very difficult. In his report for the year ending October 31, 1912, Dr. T. H. Whitelaw, the

medical officer of health, tells how successfully and actively the health department has waged its campaign.

The difficulty of obtaining full reports of deaths, births, and sickness probably makes the vital statistics a little uncertain. The death-rate is not stated in the report, but using the estimated population of 60,000 it appears to be 8.45 per thousand. The highest single cause of death was infantile diarrhœa, which makes up nearly 10 per cent. of all deaths and gives a rate of 53 per thousand births. The majority of deaths from this cause was among the foreign population, and in two-thirds of the cases the baby was being fed on cow's milk from private cows, of which there are a large number in the city. The total contagious disease rate is high; typhoid showing the especially bad figure of 407, though 143 cases would not be considered, since they were brought into the city from the outside. An epidemic of measles helped in making a total of 1,138 cases for the year, the epidemic being slow to come under control. The medical inspector of schools proved to be of great help in locating cases which otherwise might have proved a source of danger. The value of the work in the schools was also shown by the incidence of smallpox, which for the lower age periods came wholly from a newly annexed section of the city, in which vaccination had not been enforced in the schools. The whole contagious disease situation was complicated by the burning of the isolation hospital early in the year.

The rapid growth of the city has made the work of scavenging very difficult by reason of the large amount of débris accumulating from building operations and the fact that the unpaved streets often become impassable. The extension of sewer and water service has not been able to keep up with the requirements and this adds another source of danger to health. The city's milk supply is in good condition aside from the number of private cows, which are always a possible menace. The milk inspector has no facilities for laboratory examinations, but has apparently accomplished good results by frequent inspection and by educational work.

The detailed reports of the milk, food, sanitary, and health inspectors, and of the engineer, are, in general, well prepared and indicative of active and intelligent work. The total expenses of the department amounted to about $1.33 per capita population, but of this amount only 50 cents was spent by the health officer proper, the remainder going for incineration, scavenging and the support of the isolation hospital.

Savannah, Georgia.

The annual report of the Department of Public Health of Savannah for the year 1912 almost marks the completion of twenty-five years of continuous service by Dr. W. F. Branner as health officer and secretary of the board of health. Coming from a position in the United States Public Health Service, he entered the employ of the city of Savannah in April, 1888, and has done much toward giving the city a model health department.

Efficient public health administration finds a great obstacle in the fact that of the total population of 77,000 about 41,000 are colored. Of the colored inhabitants many are negroes of unmixed descent and Doctor Branner finds that they have not yet become able to thrive in cities, since they are not over 200 years removed from the African jungle. Evidence of this is shown in the death-rate which is 15.09 for whites and 27. for negroes (total rate 21.43). The deaths from tuberculosis and pneumonia are, respectively, as follows:—white, 41 and 27; negroes 130 and 111. The imperfect registration of births doubtless exaggerates the rate of deaths under one year per thousand births, but this appears to be 98 for whites and 183 for negroes. More important than the fact that the negro deaths bring up the total rates is the fact that the rate of incidence of contagious disease is proportionally high among the negroes, due to their general disregard of sanitation as well as to their greater susceptibility, and consequently their presence in the city makes a constant source

of disease among the whites so that the white rate also is abnormally high.

Among the various reports of special activities that of Doctor V. H. Bassett, the bacteriologist, is noteworthy. The value of the laboratory equipment is estimated at $12,000 and with the aid of two assistants a total of 8,250 examinations was made during the year. These included examinations of pathological specimens for bacteria or animal parasites and also 6,169 bacteriological or chemical analyses of milk, cream and ice cream. By this means a close and beneficial control is exercised over the milk supply.

No report of the cost of maintenance of the department is to be found, and in general the tabular reports are insufficient except, perhaps, in the case of the laboratory. The most glaring defect in this line is the system of classification of deaths which is arranged alphabetically and contains such classically inaccurate and undesirable terms as anemia, convulsions, dropsy, and marasmus.

Springfield, Massachusetts.

The Board of Health of Springfield presents its annual report for the year ending December 31, 1912. The report covers nearly 60 pages and is neatly bound and carefully prepared, so that it is a credit to the city in itself in addition to indicating active and progressive work on the part of the board.

Perhaps the best part of it, from the standpoint of the casual reader, is the introductory discussion of the relation between the city health department and the individual. It appears that in Springfield this relation is, on the whole, quite ideal, since the public is not merely in a receptive mood, but often actively coöperative. Taking this as a text the report says in part:—"The prevention of disease and the establishment of increased resistance to infection are great educational problems, in which the health department should act as a leader and director, but in the final outcome an equal or even greater responsibility rests upon the individual. Carelessness, ignorance, or willfulness on the part of the individual are features beyond the control of health regulations or police supervision." . . "The individual must be made to see and feel that he also has a duty to perform in improving the health of the community, and that it will in the aggregate make a great difference whether each one does his share or not. If we are to have a clean and healthy city it must come through the coöperation and help of the public at large. The careless must become careful, the willful must be restrained and the ignorant be taught and educated to appreciate the value of sanitary methods of living."

Springfield has an estimated population of 96,973, a corrected death-rate of 12.8, the lowest on record. The birth-rate was 29.9 and the infant mortality 9.7 per thousand births. The contagious disease rate is fairly low, measles leading with 598 cases but scarlet fever and diphtheria showing a decrease from previous years.

Several pages are devoted to a report on the milk supply and milk inspection. The board maintains an active control over the milk supply by means of frequent inspections and collection of samples for analysis and has succeeded in establishing very good conditions. No dip tanks are used in shops in the city and many of the restaurants are serving milk in bottles. Educational work among the producers and the score card is being used with good results. Of 405 samples examined bacteriologically during June, July and August 71.4 per cent. showed less than 100,000 bacteria per cc.

Detailed reports of the health department hospital (as the isolation hospital is now called), of the laboratory, of the medical inspection of schools and the inspector of provisions show correspondingly good and efficient work. The cost of the work of the board of health, other than the maintenance of the hospital, amounts to 17 cents per capita. This does not include scavenging.

DEPARTMENT NOTES.

Pure Milk Contest.

The *Municipal Bulletin* of Tacoma, Wash., in the issue of December 20 tells of the results of a market milk contest held as a part of their recent Home Products Exposition. Cups were offered for those making high scores but the dairymen did not know that samples were being taken until 80 per cent. had been collected. The basis of scoring is quoted below and, from the fact that four dairies scored over 75, it will be seen that at least a part of Tacoma's supply is in excellent condition.

"As a basis upon which a perfect score of 100 per cent. could be made the judges used the standard score card published by the Federal bureau of animal industry. Thirty-five points were allowed on bacteria when not more than 400 bacteria per cubic centimeter were found. When the count exceeded 200,000 per cubic centimeter no score was given, and the entire 35 points lost. For flavor and odor 25 points were awarded. Due to the fact that milk is very susceptible to bad odors with which it might come in contact, and the possible presence in the milk of undesirable bacteria from the feeding of bad food to cattle, thus influencing the flavor, great care was exercised by the judges in testing samples on this division of the award.

"The presence of dirt in the milk samples resulted in deductions of 10 points. Milk having 4 per cent. or more of butter fat was given a perfect score of 10. Milk averaging less than 2.7 per cent. was given a zero score. Another 10 points were credited to samples having 8.7 per cent. of solids not fat, while those having less than 7.8 per cent. were given no score. Five points were given for acidity, samples having .2 per cent. and less getting 5 points, while those having more than .24 per cent. were given none.

"For general appearance of bottle and cap (all market milk is now sold in bottles), 5 points were given if the average was high. Caps leaving depressions on the top of bottles where dust might collect and mire with milk oozing out around the edges were given no score."

City Laboratories as Training Schools.

Similar to, if not patterning after, the Boston Board of Health Laboratory in its coöperation with the new Boston School for Health Officers is the innovation recently introduced in Buffalo and reported in the following clipping from the Buffalo *Sanitary Bulletin:*

"Respecting the numerous applications received from time to time from younger practitioners of medicine, arrangements have been completed whereby the laboratory of the Buffalo Department of Health will receive two student assistants, who are graduates in medicine not longer than a period of five years, the age limit being not greater than thirty-two years.

"This laboratory instruction can be classed as an interneship, the recipient not receiving any other compensation other than the experience obtained.

"Persons applying for same must agree to remain at least six months and devote not less than three hours each day in the laboratory. This affords a most valuable opportunity to become familiar with the work in a health department laboratory.

"Application to enter same must be made in writing to the Health Commissioner. Applications will be received any time after January 1, 1914."

No doubt the same plan might be tried with good results in other cities.

Permanent Public Health Exhibit.

"On Wednesday, December 17, a permanent exhibit, showing the various activities of the department of health, was opened in the Exhibition Hall on the fifth floor of the department building, 149 Centre Street. On this occasion, Dr. Stephen Smith, one of the original organizers of the present department of health, delivered an interesting address describing sanitary conditions in New York City fifty years ago. At that time the death-rate was over 36 per thousand, almost treble the present rate. The health authorities had no real power to remedy matters and the work was, moreover, largely

dominated by politics. Dr. Stephen Smith was one of the prime movers in the formation of a citizens' committee, which made a very extensive and searching investigation into the sanitary condition of the city and prepared a bill which was finally enacted into law, reorganizing the department of health in its present form.

"Doctor Jacobi, another of the speakers, emphasized the enormous improvement which had taken place in the milk supply of the city and heartily endorsed the attitude of the department of health in the matter of the pasteurization of the milk supply.

"Prof. Charles F. Chandler, who was one of the first 'Pure Food' chemists in this country, gave an interesting account of the examination of foods for adulterations and emphasized the distinction between those which were dangerous to the public health and such as were merely commercial frauds but without effect on the public health.

"The retiring general medical officer of the department of health, Dr. Hermann M. Biggs, sketched the remarkable changes which had taken place in public health methods following the bacteriological discoveries of Pasteur and Koch in the seventies and eighties.

"It is planned to make the exhibit permanent and keep it up to date and make it available to students of public health and others desiring to acquaint themselves with the work of this department."

Weekly Bulletin of the New York City Department of Health, January 3.

Rat War in Tacoma.

Not to be outdone by Seattle, Tacoma is following the lead of other coast cities in investigating the rat situation there with a view to avoiding the possibility of bubonic plague. The following clipping from the *Municipal Bulletin* tells of the plans for the work:

"With the sanction of the city council the Department of Health and Sanitation has taken up the fight on the rodent. It is to be a war of extermination, not to be waged intermittently, but consistently, and the threatened danger of bubonic plague which government health experts say is imminent at the present time will be done away with.

"The plans of the health department call for an examination of every rat caught. Two men have been assigned to the work and they will set traps at different vantage points along the water front and around the sewer openings. The bodies of the captured prey will be taken to the health office and after first being placed in a strong solution of lime to kill the fleas, the inspection will be made to see if the rodent is infected with bubonic plague.

"A large number of plague-infected rats have recently been caught in Seattle, and it is the return of plague indications that has aroused the other cities on the coast to take similar preventive measures."

Requisites for Vital Statistics.

The January number of *Florida Health Notes* contains a plea for better vital statistics in the state and some directions for the local registrars. The requisites are well compiled and should find more than a local field of application. The directions are as follows:

Should be Complete.

Every birth and every death should be reported by some one having knowledge of the facts, preferably a physician. Unless 90 per cent. are reported, the returns are of little use and are often misleading. Registrars cannot expect payment if reports do not reach such degree of accuracy.

Should be Prompt.

The necessary information regarding deaths and births is often quickly forgotten and the persons having such information lost sight of, so promptness is the essence of good reports. Certificates should be filed immediately after a birth or a death. And registrars should send their monthly reports to the State Board of Health promptly.

Should be Accurate.

Every question should be answered and every blank filled out; if the information is not obtainable, the omission should be explained by the words, "Unobtainable" or "Unknown." Many of the questions may seem unnecessary and unreasonable, but each

has been carefully considered by experts, and all are needed either for legal record or medical statistics.

Should be Legible and Permanent.

All certificates, either of birth or death, should be legibly written (or typewritten) in unfading ink. This is a necessary protection that these invaluable records may be permanently preserved for future reference. Otherwise they would be undecipherable and in a short time fade and lose their value as legal or other evidence.

Should Have Proper Cause of Death.

Physicians should be careful in assigning cause of death, that deaths may be properly compiled and tabulated, and registrars should return certificates for correction when needed before sending them to the State Board of Health. When no physician attended decedent, the health officer, or the coroner in any suspicious case, and the registrar only in their absence, should sign the death certificate.

Should be Preserved and in Order.

Registrars should make copies in their record books for local record and should number each certificate consecutively, beginning a new series the first of each year for both births and deaths in new books. This will insure each community an orderly reference, while the originals will be safely kept and carefully indexed at the State Board of Health where certified copies can be obtained upon request.

Should Have the Support of the Public.

Every citizen of the state should loyally support this work, and see that every birth and death is reported to the registrar if it occurred in a city of 2,000 population or over, otherwise to the State Board of Health direct. If every one does his part there will be no question as to necessary 90 per cent. of all births and deaths being reported and Florida will soon be in the registration area and have her mortality reports published by the Census Office as an authoritative statement of her healthfulness.

Scarlet Fever, Measles and Whooping-Cough.

During the month of December the Virinia Department of Health issued special bulletins on scarlet fever, measles, and whooping-cough. Each bulletin takes up one disease, telling of its cause, mode of transmission, effect, prevention, and treatment. We quote below the suggestions given for preventing the spread of whooping-cough:

"1. Notify all the friends of the family that your child has whooping-cough.

"2. Instruct the nurse, or whoever is in charge of the child, not to mingle with other children or to go near any children in any home, park or public place.

"3. Until the cough has entirely disappeared, keep the child from Sunday School and from day school, from the street cars, from stores and from all contact with children.

"4. If the child is by accident in the company of other children and has a coughing spell, cover his mouth and nose with a paper napkin or handkerchief and burn this as soon as possible.

"5. Do to other mothers' children as you would that those children's mothers would do unto you."

The rules for measles follow:

"1. Keep children, particularly those under five, who have not had measles, away from Sunday School or any public place where children congregate during the measles epidemic.

"2. During a measles epidemic let your children play only with children who have had measles.

"3. If your children have been exposed to measles keep those who have not already had it away from other children during the period of from eight to fourteen days after exposure.

"Children who have had measles seldom or never carry it.

"The child to watch is the child who has not had measles, and the time to watch him is between eight and fourteen days after exposure."

The bulletins are excellent and could be copied elsewhere with advantage.

As to Diphtheria.

Why die from diphtheria? It is unnecessary.

Diphtheria + delay = Death.

Diphtheria works while you sleep.

Spare the cure, kill the child.

Diphtheria's worst enemy, Antitoxin; its best friend, Tomorrow.

In the presence of diphtheria, get the Do-It-Now habit.

If in doubt, use antitoxin. Better be safe than sorry.

Poverty excuses no one; treatment can be had free, if necessary. Ask for Health Bureau early. Available day and night.

Keep well children away from children who have their throats tied up.

To keep the undertakers busy, neglect the "simple sore throats."

Don't break quarantine and spread diphtheria. In other words, don't be a murderer.

No human being will visit the sick and then associate with the well; inhuman beings do.

Don't leave a diphtheria house until the Health Bureau says it's safe to do so.

A diphtheria neighborhood is a loose neighborhood; it is a bad neighborhood. Move out.

Despise the wretches who break quarantine and slaughter little children. Smite them. If you can't, tell us, and we will.

The little that some "thrifty" (?) people keep from the doctor, they give to the undertaker, and then some.

Be on the alert; make the undertaker wait.

Health Bulletin, Portland, Ore., January 5, 1914.

Coöperation in Good Housing Maintenance.

The *Bulletin of the Chicago School of Sanitary Instruction* contains in its issue of January 17 a discussion of the division of responsibility for the up-keep of tenements. Manifestly this responsibility is shared by the tenant the landlord, and the city. The article attempts to define the limits of this responsibility and from it we clip the following selections:

"The responsibilities with which the landlord is charged relate chiefly to structural maintenance; the tenant has an immediate responsibility for certain conditions in the up-keep, while the city's responsibilities relate to maintenance of the surroundings, the removal of waste and like matters, and especially to the prevention and suppression of nuisances.

The Tenant's Responsibility.

"In the very nature of the case the occupant of the premises is responsible for the removal of ordinary accumulations of waste, such as rubbish, garbage and ashes, from within the building and the keeping of the walls, floor, and all inferior parts of the premises occupied by him in a clean condition. Aside from the carelessness and damage of a willfully malicious tenant, many occupants of dwellings and apartments fail to realize that the requirements of ordinary housekeeping with respect to cleanliness and removal of accumulations must be placed on them, and that they are responsible, so far as these matters of control are concerned, for the up-keep of the premises which they occupy.

"The occupation of premises by any tenant imposes on him the duty of proper protection of the plumbing, and, above all, its maintenance in a cleanly condition."

"Many complaints are received by this department with respect to waste accumulations, dirty walls, floors, woodwork and toilets which, when investigated, show that the fault is the tenant's and that he has not fulfilled the duty resting on him of keeping these various surfaces and portions of the building for which he is responsible in proper condition.

The Landlord's Responsibilities.

"The responsibility of the landlord for ordinary maintenance and repair is, of course, somewhat less in a single dwelling than in a tenement house, as his relation to the premises is somewhat remote in the case of a dwelling rented to a single family, and the responsibility of the tenant correspondingly greater with respect to many small matters of repair and up-keep.

"It is a responsibility of the landlord to turn over the given apartment to his tenant in good repair, in clean condition, and, in general, entirely fit for occupation, and to have in his lease or by some other method of record a clear understanding as to the renewal within the rooms by painting, calcimining, papering, etc., at fixed intervals.

The City's Responsibility.

"The responsibility of the city relates mainly to conditions exterior to the dwelling

rather than to those within the building. It is clearly the duty of the city authorities to conduct the municipal housekeeping, such as the care of the streets and alleys, the prompt removal of rubbish, garbage, etc., and matters of like nature, in a manner which will facilitate the convenience and protect the health of the community."

Diphtheria Antitoxin.

The November report of the Rochester (N. Y.) Bureau of Health gives the following directions for the therapeutic use of diphtheria antitoxin:

"Diphtheria, virulent, septic or laryngeal, is frequently ushered in with hoarseness, restlessness and difficult breathing, with only a little rise in temperature and pulse. These are the cases in which large doses of diphtheria antitoxin should be given immediately. Dr. William H. Park, bacteriologist of New York City Board of Health, has proven that in these severe cases antitoxin should be administered early and in one large dose. He says that when the same amount of antitoxin is administered intravenously there is a gain of some hours in the manifestation of the beneficial effects of the serum and that the final effects of the same number of units are greater than when administered subcutaneously. Five thousand units given intravenously have as great an effect as 20,000 given subcutaneously. A German investigator says that the maximum antitoxin content of the blood may not be reached for as long as eighteen hours after the subcutaneous injection of antitoxin. One investigator reports the recovery of 200 patients treated by intravenous injection of diphtheria antitoxin, 90 per cent. of these cases being laryngeal diphtheria.

"The technique of intravenous injection is very simple. When a vein at the usual site (the bend of the arm) cannot be seen, it can be entered by feeling after two or three trials. After a torniquet has been placed in position and the vein brought into view or felt, the needle unattached to the syringe is entered and a spurt of blood from the free end of the needle is the signal for releasing the torniquet and administering the antitoxin. In order to discover anaphylaxis or hypersensitiveness, it is recommended that only a drop or two of the antitoxin be injected at first; after a pause of a minute or two, five or ten drops injected; and then, after a pause, if there are no symptoms of disturbance of breathing or circulation, a full dose of the antitoxin is to be given. Where the diphtheria antitoxin of the State Health Department is administered to sensitive persons in the large doses here recommended a single needle may be left in the vein and syringe after syringe pushed on to this needle, thus obviating the withdrawal of the needle and the necessity for frequent skin puncture."

The Cause and Cure of Colds.

The State Board of Health of Florida has established a *Press Service* and is now regularly sending out bulletins to the papers of the state on various topics so treated as to be suitable for popular reading. Below we quote some clippings from the bulletin of November 5 which discusses colds, their cause, their real importance and how we are to prevent them:

"Now look out for colds!

"This advice, as a paraphrase of the old-time almanac editor's warnings, is particularly timely at this season, although no one knows why the name was given to that condition of sneezing, wheezing and general miserableness that we wrongly associate with the cooler seasons of the year. It is a fact that colds are more prevalent in the colder months, but it is due only indirectly to lower temperatures, because at these seasons we close the doors and windows, shut out more than in summer the free circulation of fresh air, and breath too much an atmosphere which is vitiated by being depleted of oxygen.

"Most of us cherish the idea that a sudden draft of chilling air is the cause of a cold. More than likely this is but a coincidence. The doctors have concluded that this affliction is infectious, that it may be carried from one person to another by a germ, and it is often noted that when one member of the family has a cold, the others are quite likely to 'catch' it. That all do not suffer together is due to the fact that some individuals have a power of resistance that makes them immune, at least for the time.

"The germs that cause colds may be carried from one person to another through personal contact or close proximity. They are expelled from the patient by sneezing, violent coughing, in the sputum and in the mucous discharges from the nostrils. To escape catching cold from another person these germs must not be permitted to enter the system, which may be made possible through a too close proximity with the afflicted one.

"It is well known that oxygen is a purifying agent, invigorating and strengthening because of its cleansing power. The oxygen from the air breathed into the lungs is carried into the blood where it reaches the leucocytes and strengthens them for their important work. Naturally, also, a lack of oxygen exhausted from the air by breathing or other means, induces a lack of resisting power. This means that a plentiful supply of fresh, oxygen-laden air brought into the home by perfect ventilation is the best health preservative known to medical or sanitary science, and it is one of the best cures, too. It is the best preventive of colds that can be found, and it has the advantage of being decidedly cheap."

Ante-natal Care.

A very important addition to the methods used in the prevention of infant mortality is that recently introduced by the Bureau of Child Hygiene of the New York City Department of Health and reported in the weekly bulletin of the department (November 22, 1913) as follows:

"Another link has been added to the chain of effort in the reduction of infant mortality by extending the activities of the milk stations to include the care of pregnant women. Thirty-six per cent. of infant mortality occurs in the first month, and it is safe to infer that the majority of these children die either because the mothers were physically unfit to bear healthy children or because of their ignorance of the proper care of their offspring during the first weeks of life. The milk station at 2287 1st Avenue, Manhattan, has been selected as a center for the instruction of nurses in pre-natal work. When sufficiently familiar with its details, they will be assigned to other stations to carry it on. The nurses assigned to this work canvass the neighborhood and persuade expectant mothers to place themselves under medical care as early in pregnancy as possible; they communicate with the doctor of the hospital under whose care the patient may be, and explain the desire of the department of health to coöperate and the manner and degree in which it is prepared to do so; they instruct mothers in detail with regard to diet, fresh air, food, exercise, clothing, etc., and impress upon them the importance of nursing their infants.

"In normal cases visits are made every ten days ante-partum and every three days post-partum; in abnormal cases, as often as may be necessary. Visits are made for one month after labor. The mothers are then requested to enroll their children at the milk station, where they are cared for during their first and second years.

"To date one hundred and seventy-five mothers have been enrolled, of whom twenty-five have given birth to children. While it is too early to show by figures what can be accomplished, it is most gratifying to note the appreciation of the mothers and the enthusiasm of the nurses."

Vital Statistics in North Carolina.

"Beginning November 15, the state-wide Vital Statistics Law will go into effect. This law would have gone into effect six weeks earlier had not delays occurred in getting out the necessary blank forms, etc. However, there will still be six weeks in this year in which the local registrars, doctors, nurses, undertakers and others may get accustomed to the new law. After that North Carolina should have almost perfect registration, which will entitle us to recognition as a registration state along with about twenty-three other states in the Union.

"Any one desiring to register births and deaths that may have occurred prior to the time the law goes into effect may do so by presenting the facts in the case to the state registrar."

Press Service, North Carolina Board of Health, November 17.

Kansas State Board of Health.

Dr. S. J. Crumbine of the Kansas State Board of Health has again demonstrated his originality and progressive spirit in the December number of his monthly bulletin. This is a special number devoted to "Topics in studies of food and drug adulterations, public health, and sanitation, suggested for the use of women's social study clubs." Its object is "to interest the women of Kansas in the race of tomorrow, and to enable them to conserve that which is the rightful inheritance of every child of every mother, a perfect constitution and a healthful, happy existence."

The course of study is planned to extend over the nine winter months and in order to allow for two meetings a month is divided into the following seventeen topics: A study of Food Values; Food Adulteration; Sanitation of Food Supplies; Drug Adulteration; Drug Addiction, Rural Sanitation and Its Relation to the City; The Value of Vital Statistics; Sanitation of the Public School and Physical Supervision of School Children; The Cost of Preventable Disease. A Study in Efficiency; The Control of the Red Plague; Has Kansas Slum Districts and Housing Problems; Longevity and Public Health; The Proper Disposal of City Garbage and Waste; What Constitutes a Wholesome Water Supply and Its Value to the City; A Study of Occupational Diseases and Preventable Accidents; Public Health, the Basis of General Prosperity.

Under each topic are suggested titles of papers to be prepared by members of the club. As a type we quote the program on the Proper Disposal of City Garbage and Waste; (a) The Principles of Sewage Systems; (b) Individual House Wastes and Disposal Methods; (c) The Ideal Garbage Can; (d) The Prevention of Flies; (e) Methods of Collection and Final Disposal of Garbage; (f) What Are We Doing in Our Town in this Regard?

The bulletin contains also lists of books, periodicals, and state and national health publications which will be found helpful for reference in the preparation of papers.

The whole idea is excellent and with a little help and encouragement from the local health department or from physicians, who could coöperate on some of the programs, should produce very good results. Many of the women's clubs are tiring of the classical study courses on "The South American Essayists" or "The Poetry of Afghanistan," and would gladly turn to more practical and productive study but lack proper guidance which will turn their energies into the most useful channels. The effect of such a course as Doctor Crumbine proposes could hardly fail to be plainly felt in any community.

Mechanical Fakes.

The opponents of serum therapy have been caught this time and shown up in their true light. A discussion of "Mechanical Fakes" in the *Health Bulletin* of the state of North Carolina takes up the Oxydonor, Oxygenor, etc., and shows how absolutely worthless they are, from the electropoise which was simply a nickel plated brass tube through which the body was supposed to absorb oxygen, to the Oxygenator which the University of Vermont found to contain the waste product of a manufacturing plant. The comment on this last contrivance is quoted as follows:

"According to 'Nostrums and Quackery' it would seem that the Oxypathor is the youngest member of the family group or the last alias adopted by Sanche's original idea.

"'In many ways,' says Nostrums and Quackery, 'this last type of gas-pipe cure is the worst, inasmuch as claims are made for it that are not only absurd but dangerous. For instance:

" '*Diphtheria:* This overwhelming child's disease finds its supreme master in the Oxygenator. No earthly power except the Oxygenator can take the slowly choking child and with speed, simplicity and safety bring it back to health.

" 'Don't jeopardize the health and life of your children by allowing to be injected into their veins and blood the often fearfully contaminated and death-dealing serum of an animal, otherwise known as antitoxin.'

"It is difficult to restrain one's indignation at the thought that such viciously cruel lies as these are permitted to be scattered broadcast. Let the neurotic and neurasthenic adult, if he can convince himself that a nickel-

plated piece of gas-pipe possesses curative properties, experiment with it on his own person if he wishes. But that a helpless child in the throes of a fearfully dangerous—and yet, rightly treated, curable—disease, should be allowed to suffer and die because ignorant parents have been persuaded to rely on these mechanical frauds, is no less than criminal. As for the miserable harpies who for a few filthy dollars will write such cold-blooded untruths as those quoted above, the safety of society demands that they be put where they can do no further harm."

Sediment Testing for Milk.

Another step in the supervision of the milk supply has been taken by the Board of Health of New York City. Believing that the amount of dirt in milk affords a criterion of the way in which it has been handled and perhaps realizing that bacterial count was subject to criticism as an index of contamination on account of the large increase taking place proportionally to increase in time and temperature of storage, the board, on December 22, 1913, passed the following resolution:

"WHEREAS, The protection of the public health requires that the milk supplied and furnished in the city of New York be clean and wholesome, and for the accomplishment of this purpose it is advisable that a sediment tester be used in creameries from which milk is shipped to the city of New York, and that all milk delivered to said creameries should be tested by and through a sediment tester, therefore, be it

"*Resolved*, That the following regulations for the protection of life and the care, promotion and preservation of health, be and the same are hereby adopted to take effect on and after the first day of February, 1914:

"(1) That a sediment tester approved by the Department of Health of the City of New York, be used in all creameries shipping milk to the city of New York.

"(2) That all milk received at any creamery so shipping milk as aforesaid be tested thereat by the person having the management and control of such creamery at least once a week, and that the results of such test be posted in a conspicuous place in the creamery and duplicates of such test be forwarded to the department of health at the end of each month.

"(3) That the photograph or gauge established by the Board of Health of the City of New York be used as a standard in the creameries herein referred to in determining whether milk contains excessive sediment.

"(4) That where the maximum of sediment is shown to habitually exist in milk tested as aforesaid at any creamery it will constitute sufficient cause to rate the milk as Grade C, with the right of said board to exclude such milk from the city of New York when such conditions continue."

The Duty of Physicians Relative to Preventive Medicine.

The following article from the *Cleveland Medical Journal* of November, 1913, is a hopeful sign, inasmuch as it shows that physicians are awaking to a realization of the fact that their responsibility lies in the direction of prevention as well as cure of disease and that the usual course of training in the medical schools does not lay sufficient emphasis on this fact nor prepare men to be really efficient in public health work without some additional time spent in specialization.

"At the present time considerable attention is paid to preventive medicine. The majority of medical colleges have a department of preventive medicine and hygiene, and a certain number of hours is allotted to lectures on these subjects. Considerable attention, too, is given to the prevention of infant mortality, to question of fresh air and sunlight and to the necessity of pure water and milk supply. Boards of health have accomplished a great deal in limiting the number of contagious diseases, by requiring physicians to report these cases and to institute proper isolation, and by the medical inspection of schools.

"Is the family physician doing all in his power to prevent disease among his patients? Take for example, in vaccination we have an almost certain means of stamping out smallpox, yet how many physicians urge upon their patients the necessity of having their babies vaccinated at the third or fourth month? Little objection would be met on the part of parents if the need of this pre-

caution was urged upon them. Every physician knows or should know that the ordinary head cold is very contagious, and yet we very seldom see an attempt made to keep one child in a family who has a severe coryza isolated from the other children. In babies, particularly, this condition may be followed by such disastrous results as pharyngitis, cervical adenitis, otitis media, and mastoiditis. Surely any precaution which might protect a baby from such illnesses is worth taking. One very hopeful sign is that the intelligent laity are beginning to see the necessity of isolating cases of 'cold' and 'sore throat,' and the physician who does not advise that these precautions are carried out will be supplanted by one who does.

"Typhoid fever can now be stamped out almost completely by vaccination, as shown by the convincing results reported by Major Russell in the United States Army. It is distressing, however, to see how slow physicians are in advising their patients as to the necessity of being vaccinated against typhoid.

"What is the cause of this indifference among physicians? One reason is that they are so occupied in treating disease that they do not pay enough attention to prevention. Another and probably the strongest reason is that in our medical colleges today, too much attention is paid to the big problems of diagnosis and pathology and not enough to therapeutics, especially to the prophylaxis of disease. It is too common a saying that anyone can treat disease, once the diagnosis is made."

PERSONAL NOTES.

The following have been elected to membership in the American Public Health Association since the meetings in Colorado Springs last September:

Elected October 25, 1913.

Mr. Max J. Colton, Summit, N. J.

Mr. Fred L. Crocker, Birmingham, Ala.

The International Committee of the Y. M. C. A., New York, N. Y.

Mr. Herbert I. Reid, Colorado Springs, Col.

Mr. Charles D. Howard, Concord, N. H.

Mr. Charles A. Haskins, Lawrence, Kan.

Dr. John M. Dodd, Ashland, Wis.

Dr. William K. Lindsay, Sacramento, Cal.

Mr. Frederick T. Robson, San Francisco, Cal.

Dr. William J. Malloy, Muncie, Ind.

Mr. George H. Hazlehurst, Wilmington, N. C.

Elected December 9, 1913.

Mr. Frederic Bonnet Jr., Worcester, Mass.

Mr. Victor George Heiser, Manila, P. I.

National Organization for Public Health Nursing, New York City.

Mr. Oscar C. Pickel, Canal Zone.

Mr. George M. Wells, Canal Zone.

Mr. Allen F. Gillihan, Oakland, Cal.

Dr. W. H. Hattie, Halifax, N. S.

Elected December 27, 1913.

Dr. Charles M. Smith, Fredericksburg, Va.

Mr. William H. Gould, Toledo, Ohio.

Mr. Andrew Foster Allen, Campello, Mass.

Dr. Elmer C. Jackson, Ashland, Wis.

Dr. Emery R. Hayhurst, Columbus, Ohio.

Mr. George H. Shaw, Brooklyn, N. Y.

Department of Health, San Francisco, Cal.

Mr. Robert N. Turner, Boston, Mass.

Mr. Willis T. Knowlton, Los Angeles, Cal.

Mr. Edward Allyn Lambert, Bridgeport, Conn.

Elected January 22, 1914.

Mr. James E. Rush, Madison, Wis.

Mr. Otto Rahn, University of Illinois, Urbana, Ill.

Miss Jane B. Patten, Boston Mass.

Mr. Fred Wilbur Tanner, Urbana, Ill.

Mr. Herbert M. Hill, Buffalo, N. Y.

Mr. Morris Cohen, New York City.

Mr. John Hall, Long Branch, N. J.

Mr. Arthur M. Buswell, New York City.

Elected January 31, 1914.

Dr. Charles Morton Gould, Superior, Wis.

Mr. Lloyd D. Smoat, Jacksonville, Fla.

Mr. Wallace Todd Eakins, Trenton, N. J.

Dr. Ellen A. Stone, Providence, R. I.

Mr. William Henry Baldwin, Washington, D. C.

Dr. Walter A. Plecker, Richmond, Va.

Dr. L. A. Bize, Tampa, Fla.

Dr. U. S. Grant, Tampa, Fla.

Mr. John A. Kingsbury has resigned as director of the A. I. C. P. of New York City to become Commissioner of Charities under Mayor Mitchell.

PUBLIC HEALTH NOTES.

A Life Extension Institute.

A coöperative movement, largely on the part of insurance companies, for the conservation of human life, was recently launched in New York under the name "Life Extension Institute." E. E. Rittenhouse, conservation commissioner of the Equitable Life Assurance Society, will be the president and Dr. Eugene L. Fisk of the Postal Life Insurance Co., medical director. The Board of Directors includes ex-president William H. Taft, chairman; Harold A. Ley of Springfield, originator of the plan; Prof. Irving Fisher of Yale, E. E. Rittenhouse, Robert W. De Forest, Frank A. Vanderlip, Dr. E. R. L. Gould, and Charles H. Sabin of New York, Francis R. Cooley of Hartford, Conn., and Henry A. Bowman of Springfield, Mass.

"The method to be used to prolong life is very simple and the same as applied to ordinary machinery—inspection and repair." says Professor Fisher in an interview reported in the *New York Times*. "Any person, whether as a policy holder in a company which employs the institute or as an outside individual, may have an expert examination made of his physical condition. If he is entitled to the examination as a policy holder, he has it without cost to himself.

"After the human machine has been inspected, the individual will be advised to see his family physician, who will be furnished a full statement of the results of the examination—high blood pressure, or whatever the disability may be. Doctor Fisk, on the basis of his experience in this work for the Provident Savings and Postal Life, is convinced that the simple early discovery of slight 'impairments,' which would induce the impaired man to consult his doctor before it is too late, has greatly reduced the death-rate among those who had the good fortune to make the examinations.

"The institute will employ experts throughout the land to act as medical examiners and to coöperate in this new movement to prevent and to check disease. This suggests the method of the Chinese, who employ physicians to keep them well instead of to treat them after they have become seriously ill.

"The institute plans to make arrangements not only with life insurance companies but with schools, industrial establishments, clubs and individuals, as well as to coöperate with hygienic agencies and movements of all kinds, including those connected with the tuberculosis movement, the social hygiene movement, the eugenics movements, the public health departments, Federal, state and municipal, and even popular gymnastics and sports. It will establish laboratories in the larger cities for analysis of blood, urine, etc., of the persons examined.

"The Hygienic Reference Board will aim ultimately to settle scientifically, so far as possible, the many disputed questions of personal hygiene. As yet personal hygiene has been neglected, especially in America, and 'how to live' is a debatable question even among experts. The board will secure the coöperation of savants throughout the world to solve such fundamental problems as how best to ventilate our houses and how best to clothe and feed our bodies. In this way it is hoped to steer a scientific course between the Scylla of foolish fads which beguile the unwary and the Charybdis of conventional ways of living which most of us accept blindly because others have accepted them before us."

The Typhoid Fly

"When all the evidence shall have been garnered the domestic fly will appear as the greatest offender known to the sanitarian. Not only is this pest a mechanical carrier of infection, but, as shown by recent experiments performed by V. Ph. Berezoff at the Institute of Experimental Medicine in St. Petersburg (*Roussky Vratch*, June 29, 1913), it harbors pathogenic bacteria in the interior of its body for long periods. This investigator obtained from the hospitals of St. Petersburg about 150 hibernating and frozen flies. After carefully disinfecting and washing the exterior, he dried the flies and made cultures

from the contents of the intestinal tract. Powdered and emulsified flies were also injected into animals. By these methods, the author succeeded in isolating staphylococci, proteus and colon bacilli, streptococci, twenty-four varieties of non-pathogenic micrococci, a sarcina, twenty-five varieties of bacilli, two species of fungi, and some unidentified bacteria—quite a formidable list. These bacteria, then, remained viable in the intestinal tract of the flies for four to five months. Another experiment performed by the author shows the menacing possibilities of the house fly still more forcibly. In the early spring, when the flies awake from their winter sleep, he fed a number of flies on cultures of pathogenic bacteria, the typhoid bacillus, the paratyphoid, the pyocyaneus, streptococci, diphtheria bacillus, and the cholera bacillus. In the course of a week the flies, having laid their eggs, died. The dead flies were then allowed to remain for a month or more and then treated in the same manner as the hibernating flies. In each case a pure culture of the organism on which the fly was fed was obtained, with the exception of the diphtheria bacillus, the paratyphoid A, and the cholera bacillus. These experiments prove that the fly may act as a splendid incubator for pathogenic bacteria, retaining them in a living state for months. It would seem that the usual method of swatting the fly is not free from danger, as the bacteria in the intestines may thus become liberated. Dead flies should either be washed down into a sewer or else cremated, the latter being probably the preferable method."

New York Medical Journal,

Nov. 22, 1913.

Doctor Savage's Report on Ptomaines.

A review of Dr. William G. Savage's report to the Local Government upon *Bacterial Food Poisoning and Food Infections* is contained in the November number of *Public Health* (London).

While it is true that a few outbreaks of food poisoning are reported each year, many other extensive outbreaks go unreported. Such outbreaks usually show one article of food to have been eaten by all the sufferers. There is, as a rule, a definite incubation period, accompanied by the same sort of symptoms. The chemical theory of ptomaines as "toxic bodies from putrefactive decomposition" seems to be called into question. At least it seems to explain no more than limited outbreaks.

Although Doctor Savage considers this theory, he does not feel that experimental work on B. proteus (the most important of the putrefactive organisms) warrants an acceptance of it. In none of the outbreaks ascribed to B. proteus was it established to be the cause, although he cautiously admits it as a possible cause in individual cases or limited outbreaks.

The suspected cause of food poisoning is the Gaertner group. B. enteritidis, a member of this group was isolated in 1888 by Gaertner from a fatal case and from the organs of the cow supplying the meat in a meat-poisoning outbreak in Germany. Doctor Savage has carefully studied seventy-nine outbreaks in England as well as others on the continent. The Gaertner group was shown to have been isolated in 71 per cent. of the British cases, where bacteriological investigations were carried on. In the remaining 29 per cent. the Gaertner group could not be excluded. On the continent all of the cases showed at least one organism of this group. This would indicate that B. coli and B. proteus are insignificant.

Treating the Gaertner group as the cause, prevention has not become any the easier. The group has been shown to be the cause of disease in certain animals used for food. It is also found in other animals capable of infecting food. Furthermore vegetable foods have shown an infection with these organisms. In some cases meat from healthy animals has become infected subsequent to slaughter.

Doctor Savage deals with three possible hypothesis as explaining the method of infection. The first, that the bacilli are of human origin, he dismisses as entirely untenable. The second is that the bacilli are derived from ordinary fecal infection of food. This would afford an easy explanation for many cases of infected food, but would imply that

the Gaertner group is a natural inhabitant of the intestines. The latter conclusion is negatived by the investigations of Doctor Savage and others. Furthermore, outbreaks would be much more common because of the unusual opportunities for fecal contamination in our present-day methods of handling meat-foods.

The last hypothesis seems to appeal to Doctor Savage as the most tenable. This is, "that food-poisoning outbreaks are due to infection of the food with virulent Gaertner group organisms (or other special bacilli) derived from animals which are either at the time suffering from disease due to Gaertner group bacilli or acting as carriers of those bacilli." This would seem to explain cases where the infected flesh of the diseased animals is eaten or where infection has taken place during or after preparation. While not proved as yet, this theory seems to be supported by many facts.

The necessity for discovering all of the possible sources of infection is quite evident. At the same time there should be enforced in and about slaughter-houses the most detailed rules for cleanliness. In addition the place in which food is prepared should be separated from the slaughter-house proper. Failure to exercise care in the preparation of made-foods is doubtless the greatest cause of these epidemics.

W.E.B.

Industrial Accident Legislation.

"According to a bulletin issued by the American Association for Labor Legislation, describing the labor laws passed by Congress during the year 1913, twelve states have passed new or strengthened old laws requiring the reporting of accidents on railways and in mines and factories. Four new states have required physicians to report the most common occupational diseases, and New York and Connecticut have extended their laws to include brass and wood alcohol poisoning. Laws requiring sanitation, dust and fume removal, and washing facilities in factories were widely adopted, and three great lead-using states, Missouri, Ohio, and Pennsylvania, have enacted scientific provisions for protection against trade diseases, particularly lead poisoning. Safety requirements for mines were made more stringent in fifteen states, while twenty-six states demanded greater safety for railroad employees. During the year, Ohio, Massachusetts, California, New York, and Pennsylvania, have reorganized their labor departments, and in over a dozen additional states factory inspection departments have been reorganized and enlarged."

New York Medical Journal, December 13, 1913.

Sterilization of Milk by Electricity.

"The Bacteriological Department of Liverpool University was approached some time ago by the Infant Life Protection Committee of the same city, with a view of ascertaining whether milk could be sterilized by electricity, and whether such a process had any advantages over the existing system of pasteurization. The results of the researches made by Dr. J. Beattie, the city bacteriologist, have now been reported. It was found that the electrical method is more economical; the *Bacillus coli* and its allies were invariably destroyed, and that there was an enormous reduction in the total number of bacteria of all kinds. The keeping qualities of the milk were greatly improved; the nutritive properties were not in any way affected, nor was the taste of the milk in any way altered. Tubercular milk was also submitted to the electrical method, and it has been found that the tubercle bacilli can be destroyed by this method."

The Journal of State Medicine, September, 1913.

Report of Department of Argriculture.

The annual report of the Department of Agriculture for 1913 contains the following material on public health topics. The clippings are from a summary which has been sent out for general publication:

Country to Be Districted to Enforce Food and Drugs Act.

Certain reorganizations have been effected in the Bureau of Chemistry looking toward more effective administration of the Food and Drugs Act and to greater constructive technological assistance to manufacturers in

avoiding waste, reducing cost of manufacture, and to help them develop purer products which will comply with the law. The country will be divided into several districts each under the direction of a competent official. All branch laboratories and food inspectors will be under single direction and will work together instead of being independent of each other, a condition which led lack of coördination in the past. Certain branch laboratories will be consolidated because the work can be done more effectively and more cheaply in the larger central laboratories which are provided with complete equipment and specializing chemists. Effort will be made to make the act more of a hygienic measure through increased attention to milk, eggs, oysters, and fish, which are subject to organic contamination and may become carriers of disease.

To bring about greater harmony in the work of the state food officials and the department in food and drug work, the secretary called a conference which was attended by representatives of thirty-two states, the District of Columbia, and Porto Rico. It is believed that this conference has promoted much better understanding and will lead to a number of specific improvements. An office which will act as a clearing house of information among the state and Federal food and drug officials will be established to prevent duplication of work and promote harmonious action and coöperation. Experience has revealed certain weaknesses in the food and drugs act—notably the lack of provision for legal standards, and its failure to apply to certain external remedies. The secretary will ask that authority be granted to prepare and submit such amendments to this law as may be deemed needful to safeguard the health of the people, establish standards, better define drugs, improve the food supply, and promote uniformity in the matter of food legislation.

To Study Disease-Carrying Insects which Affect Agriculture.

The effect of the malaria-carrying mosquito on agricultural production has been made the subject of investigation on southern plantations. Attention will be given to other disease-transmitting insects such as the house fly, stable fly, and spotted fever tick, which have a bearing on the health of rural populations. Satisfactory progress has been made in a study to discover means whereby the breeding of flies in manure may be prevented without lessening its fertilizing value.

His Right Course Is Clear!

"When a man honorable, honest, or even decent has made against another a serious charge and later learns on unquestionable authority that the charge was false, he promptly withdraws it, with apologies and expressions of regret proportioned to the seriousness of his accusation. If harm has resulted from what he said, he repairs it to the extent of his ability.

"These statements are the mere commonplaces of courtesy and morality, of course, but none the less it seems necessary to commend them with earnestness and emphasis to the attention of Frank Stevens, one of the most voluble and impassioned speakers at the Congress of Anti-vivisectionists which just closed in Washington.

"Mr. Stevens, in one of his orations, accused Doctor Noguchi of the Rockefeller Institute of having, as an 'experiment,' injected into a large number of poor children the 'poison' or 'germs' of a terrible disease. In a letter printed yesterday, and in terms surprisingly calm and temperate, Doctor Simon Flexner told just what Doctor Noguchi did—a wholly different thing, of now widely recognized utility, and carrying no possibility of infection. Doctor Flexner also noted that this information was not then given for the first time by him, and mentioned several ways in which it might have reached Mr. Stevens before. Doctor Flexner, being a cautious as well as a kindly man, did not say that it did reach Mr. Stevens before.

"That provides Mr. Stevens with an opportunity to do the right thing—gracefully. He has only to admit that he did not know what he should have known—that he made in gross ignorance a hideous charge against a great scientist—that he is sorry for it. When he does that, taking pains, of course, to spread his retraction as

far as his accusation went, then he will have proved himself a rash but well-intentioned man. Incidentally, he will have broken every anti-vivisection record—done something that no anti-vivisectionist ever did before. Likely enough he will have wrecked the whole anti-vivisection cause, but what of that, so long as he escapes the agonies of remorse from which he presumably is, because he ought to be now suffering?"

New York Times, December 13, 1913.

Sex Education.

"To what extent can sex instruction be given in the public schools? Wide difference of opinion still exists among school men on the subject, judging from reports received at the United States Bureau of Education. There is widespread recognition of what President Foster of Reed College, calls 'The Social Emergency,' and general agreement as to the need of action against the social evil but when it cones to the question of what part the public school shall play, the ideas range from a detailed plan of sex instruction beginning in the elementary schools to a determined opposition to any form of sex education whatsoever.

"Prof. Thos H. Balliet of New York University outlines several points of attack in sex education. He believes sex instruction can now be given to the following groups: (1) to parents, by means of lectures; (2) to enlisted men in the army and navy, where the need for it is urgent; (3) to college students, both men and women; (4) to young people in Y. M. C. A., and similar associations. Doctor Balliet considers sex instruction to college students particularly valuable, because it will enable them to impart sex knowledge in turn to pupils in elementary and secondary schools, as soon as the public is prepared for this step."

Wisconsin State Board of Health Bulletin.

Insect-Borne Anthrax

Experiments are now being carried on by M. B. Mitzmain, veterinary entomologist of the Philippines, to determine the possibility of the transmission of anthrax by means of the bite of Stomoxys calcitrans and of Tabanus striatus. The fly is allowed to bite an infected animal in a stage of the disease so advanced that the peripheral circulation contains tremendous numbers of the bacteria, a condition existing only for a short time before death. It is then allowed to bite a healthy animal and in all cases carried out in this manner the animal has become infected and died. Stomoxys calcitrans has transmitted the disease after an interval of twenty minutes following the biting of the infected animal and has been shown to harbor the bacteria in its feces fourteen to seventeen days.

Migration of Consumptives in Interstate Traffic.

The United States Public Health Service has undertaken an investigation of the migration of tuberculous persons in interstate traffic. Officers of the service are now making studies of this subject in California, North Carolina, and Texas. The object of the investigation is to determine the extent of such migration, to ascertain its effects on the traveling public, and its influence from economic and public health standpoints on the communities to which tuberculous persons resort. The work was undertaken at the suggestion of the Texas Public Health Association. The service is also preparing to undertake a thorough and systematic investigation of conditions relating to the prevalence and prevention of tuberculosis in the city of Cincinnati, working in coöperation with the Anti-Tuberculosis League of that city.

Compensation for Trichinosis Infection.

A woman of Glen Lyon, Penn., has been awarded a verdict of $3,000 against a meat company for the death of her husband who died after eating pork sent out from the packing house of the company in Chicago. Seven members of the household were stricken on January 31, 1911, after eating pork. The husband died and the others recovered.

A post-mortem examination showed that the pork was infected with trichinæ. Examination of the stomach and internal organs showed that he died from trichinosis.

The company tried to dodge responsibility on the claim that the meat had passed govern-

ment inspection, but Judge Woodward held that the company was bound by law to furnish wholesome meat.

If it is found possible to get similar decisions in other states the result may be more effective in improving our meat supply than any amount of government inspection.

Medical School Inspection.

The value of medical inspection of schools and the employment of school nurses seems to be finding favor wherever it has received a fair trial. In his last report to the Common Council Doctor Emerson, the superintendent of Education of Buffalo, N. Y., calls attention to the activities of the medical inspectors in recommending care and treatment for children with physical defects. He says:

"In this way many children have received medical and surgical attention who otherwise might still be suffering in body and retarded in their progress through the schools. Medical supervision of this kind facilitates the advancement of pupils from grade to grade and reduces the number of repeaters in our schools, thus lowering the per capita cost of instruction. It raises the general average of efficiency both for pupils and for teachers, and is, therefore, a measure of the wisest economy."

Referring to the services of the school nurses, he says that they "have supplemented the work of the doctors by treating many conditions that would otherwise have remained uncared for in the families of the poorest children, and by visiting the homes of those who were neglected."

The superintendent believes that it is most desirable to increase the number of school nurses in order to cover the needs of the schools more efficiently. He notes the growth during the past year of the special classes in the public schools and looks forward to an increase in the number of mental examiners, who are needed "in order that more attention may be given to the physical as well as the mental needs of this unfortunate class of sub-normal children."

The American Society for the Control of Cancer has recently issued the following facts concerning this disease:

The Campaign Against Cancer.

Its Frequency.

Cancer is of greater frequency in adult life than tuberculosis, pneumonia, typhoid fever, or digestive diseases.

In 1913 there were about 75,000 deaths from this disease in the United States.

One person in eleven at ages forty and over dies of cancer.

One woman in eight and one man in fourteen at this period of life is attacked by the disease with fatal results.

Largely because of public ignorance and negligence this terrible scourge now proves fatal in over 90 per cent. of the attacks.

Of the 75,000 deaths from this disease in the United States in 1913 about 30,000 were deaths from cancer of the stomach and liver, 12,000 from cancer of the uterus and other organs of generation, 7,500 from cancer of the breast and about 25,500 from cancer of other organs and parts.

Its Victims.

Cancer respects neither race, creed nor social position.

It is the common enemy of all mankind, attacking rich and poor alike.

It comes at the most useful period of life, at the age when the care and guidance of children and business responsibilities make the mother and father most useful to society.

Its Nature.

Cancer is at first invariably a local disease.

It is easily cured when recognized and removed by competent surgery early in its course.

It is practically always incurable in its later stages.

Delay in thorough examination and prompt operation, if the disease be present, is not merely dangerous—it is fatal.

Conference on Race Betterment.

Four hundred men and women of prominence met in Battle Creek January 8–12 to assemble evidence of race deterioration and to consider methods of checking the downward trend of mankind. The meeting was known as the First National Conference on Race Betterment. Through the coöperation of the press, the objects and aims of the

conference have been very widely disseminated and a resultant influence for better race ideals is anticipated.

The conference had its inception in the efforts of four men, particularly interested in race betterment—Rev. Newell Dwight Hillis, pastor of Plymouth Church, Brooklyn, N. Y.; Dr. J. H. Kellogg of the Battle Creek Sanitarium; Sir Horace Plunkett, former minister of agriculture for Ireland; and Prof. Irving Fisher of Yale University. At the invitation of a central committee chosen largely by these men, fifty men and women of national prominence in the fields of science and education consented to share in the program. Their addresses, together with open discussion of many of the points considered, constituted a very widespread study of all phases of evident race degeneracy and the advocacy of many ideas of reform. Some of the suggested methods of improvement are frequent medical examination of the well, outdoor life, temperance in diet, biologic habits of living. open-air schools and playgrounds, the encouragement of rural life, the segregation or sterilization of defectives, the encouragement of eugenic marriages by requiring medical certificates before granting license, and the establishing of a eugenics registry for the development of a race of human thoroughbreds.

Among those having a share in the program were: Rev. Newell Dwight Hillis, Jacob Riis, Judge Ben B. Lindsey, Booker T. Washington, Dr. Victor C. Vaughan, Dr. S. Adolphus Knopf, Dr. C. B. Davenport, Dr. J. N. Hurty, the Very Reverend (Dean) Walter Taylor Sumner and many others of equal prominence.

Open Air Schools.

Those interested in the administration of anti-tuberculosis work, and those confronted with the responsibilities of public school management, will find much of interest and profit in a recent Sage Foundation bulletin,—"Open Air Schools." The little pamphlet is of sixteen pages; points out the need for this special provision for delicate children; traces the growth of the movement, and emphasizes the fundamental necessities. It is liberally illustrated and should prove useful where a briefer stimulus is desired than Doctor Ayres' fuller treatment of the subject in his book of the same title. The pamphlet may be obtained for ten cents from the Division of Education, Russell Sage Foundation, 130 East 2d Street, New York City.

Cleaning up Guayaquil.

"The Ecuadorean government has approved the contract with a London firm for the sanitation of Guayaquil. The question of cleaning up Guayaquil has been under consideration for a long time. Bubonic plague and yellow fever have been prevalent there, and the proper sanitation of the port was made the subject of an investigation by Col. William C. Gorgas, head of the sanitary work in the Panama Canal Zone. The installation of a proper sanitary system has been made imperative by the early opening of the Panama Canal. It is understood that the cost of the work will approximate $10,000,000."

Science, January 9, 1914.

Report Disease.

"A physician stated in our presence, not six months ago, that he would not report contagious diseases, that he did not believe there was any law compelling him to do so, and he, therefore, served notice upon the commissioner of health that in the future the department need expect no assistance from him in such work. The commissioner of health enjoys a good, sharp, legitimate scrap probably as well as most men. However, it seems to us that in failing to report contagious diseases a physician at once renders himself most blameworthy, untrustworthy, despicable and dangerous. He at once becomes a danger, not only to the family, but to the city as well. A man, who refuses to report a case of contagion and thus exposes one single person unnecessarily to a fatal disease, is not worthy of the regard of any decent, self-respecting man. A physician who will countenance the concealment of a contagious disease at the request of those who are employing him is not true to his profession and is untrue, as a matter of fact, to the people who are employing him. Such a one in any city is a moral leper, going up and down our streets countenanc-

ing cruel death to your children, to your friends and to all innocent men and women.

"The abortionist is despised utterly by the women upon whom he performs an illegitimate operation when there is not sufficient reason to justify the act. The man who hides fatal disease at the request of a woman or a man is, as a matter of fact, as despicable, as dishonorable, as mean and tricky as is the abortionist, that most abject and horrible of all God's creatures.

"A man clothed with the magnificent garb of the medical profession, saying to the constituted health authorities that he will not longer protect human life, that so far as he be concerned he will allow contagion to stalk through your city, deserves your contempt and should be abhorred by every right-thinking man and woman in Seattle.

"In our department we have endeavored to be fair and just to the physician who, on account of fatigue and unusual hard work, has forgotten to send in the cases of contagion which have occurred in his practice, and only once have we found it necessary to make an arrest of a physician in this city for failing to report, and this was an instance so flagrant and which resulted so disastrously (inasmuch as death occurred) that we were forced to take action. We believe we are fair to the physicians in this city from whom in return we have received splendid support. It is a crime and disgrace for any physician to so far forget himself, to so far forget what his duty is to his profession, and also to so far forget his duty to the family by whom he is employed and to the immediate neighborhood and to the public at large as to wilfully refuse to comply with the very reasonable terms of the laws of this city and state. Such a physician should not imagine for one moment that he gains by such actions, because every man and woman in Seattle knows that if their family physician will be dishonorable in this he will be dishonorable in every other act of life. What can be more important and more necessary than the saving of human life, by reporting contagious diseases that their spread may be stopped without a moment's loss.

"Let me say to every person who will read this bulletin (and there will be 65,000 people in this city likely to see this article) that, if a physician in your employ refuses to obey the law so plainly stated and so uniformly lived up to by almost every physician in this community, he commits an unpardonable sin. Remember that if he conceals a case of contagious sickness, at your request, that the next day he may conceal a case of smallpox, diphtheria, scarlet fever or of plague in the next home to yours. Please think now that your little children, playing in the yard adjoining your neighbor, may receivee that poison from a case which has been concealed in your neighbor's house which will destroy their lives and render your home bleak and barren of all future pleasures and peace. Think of a man unskilled in medicine who would voluntarily expose a child to a fatal disease; then think of the unspeakable physician, so utterly degenerate in every way that he will refuse so far as it lies within his power to report promptly all his contagious diseases that we may attempt to save those little lives which are so dear to you; which mean so much in your home; which mean so much in the community, among your friends and neighbors,—yes, which mean so much even in the great city of Seattle.

Bulletin of the Seattle School of Sanitary Science.

COMMUNICATIONS.

January 11, 1914.

The Editor, The American Journal of Public Health:

SIR—In the October number there appears a most interesting paper from the pen of Prof. William T. Sedgwick, entitled "Reappearance of the Ghosts of Malthus."

One can not read this paper without being impressed with the rapidity with which our country is becoming overpopulated or, rather, the rapidity with which we are becoming dependent upon other nations for our food supply. Less than twenty years ago the Federal government conducted

throughout Europe a campaign to introduce our corn products, but by a recent issue of the daily papers we learn that today we are importing large quantities of corn from Argentine.

It has been said that by 1950, at the present rate, our country will not produce sufficient food for the people. This being the case, it seems that every effort should be made to increase the productiveness of the soil. Much is being accomplished by the rotation of crops and the better utilization of fertilizers, but still we are falling behind.

To me one of the greatest national wastes is in our crude methods of disposal of human excrement.

The case may be put this way. An acre of ground produces a certain quantity of food products. These are utilized by some person or persons, but instead of returning their waste products to the soil they are thrown into a sewer, where to all intents and purposes they are lost forever.

Just what is the fertilizer value of human excrement I do not know, but observations of Chinese and Japanese gardens in Oriental lands leads one to believe that the value is high. While I would not advocate the utilization of human excrement after the crude methods used in the Orient, I would suggest that an investigation of the utility and the fertilizer values of human excrement might be a most profitable subject for some student of agriculture and sanitary science.

I am well aware of the dangers of throwing raw feces on the ground. One who went through the terrible typhoid epidemic in our army in 1898 and who has seen more than one cholera epidemic does not have to be reminded of that danger. Yet I am fully convinced that we can devise a method for the utilization of feces and at the same time eliminate these dangers.

Studies of the life histories of the typhoid and dysentery bacilli in the soil have given such varying results that it seems that the whole subject should be studied anew, not from an academic, but from a practical, point of view, for the purpose of determining a method of disposal and storage which will insure the death of these germs, and at the same time will not be too costly.

The water carriage system is so convenient and easy of operation that very few have ever asked themselves the question: "Is it possible to devise another system that will do as well?" However, a hundred years of sewers have resulted in the pollution of nearly every stream, lake and pond in our country. Ruskin has put it clearly when he says: "Waters which a Pagan would have worshiped in their purity, and you have only worshiped in their pollution."

The water system is very expensive. At great expense a city purifies its water supply to be used to wash contaminated feces back into the water supply of some other city. The flushing of closets uses no small part of the water supply used by a city.

Our sanitary officials do not consider the cost of these things when they recommend public improvements. They forget that if in their endeavors to improve the health of a community they are impoverishing the land and taxing the people too much they are creating the very conditions that they strive to eliminate.

The time will come when for a city to have a sewer carrying fecal matter will be a disgrace.

Yours very truly,

ISAAC W. BREWER, M. D.

January 14, 1914.

Secretary, American Public Health Association:

SIR—I have the honour to inform you that at the Annual General Meeting of the Canadian Public Health Association held in Regina on the 18th of September last, the following resolution was unanimously carried:

"That the Standard laboratory methods of the American Health Association be adopted as the Standard of the Canadian Public Health Association."

And that a copy of this resolution be forwarded to the secretary of the Association.

I am, Sir, yours sincerely,

LORNE DRUM,
General Secretary.

CURRENT PUBLIC HEALTH LITERATURE

AMERICAN

Boston Medical and Surgical Journal

CLXIX, No. 26. Dec. 25, 1913

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